



Ontario's Climate Change *Action Plan*

Creating Our Sustainable Future

Annual Report 2007-2008

Protecting our environment.



Ontario

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A Message from the Minister of the Environment



Faced with the reality of world-wide climate change, governments today have a clear choice: do nothing; or embrace the transition to a low carbon, green future. Ontario has chosen to be a leader.

We are taking action.

This is Ontario's first annual report outlining what is being done to implement Ontario's Climate Change Action Plan, our province's blueprint for building this future.

Because this annual report is our first, it lays out the steps we have taken in the first year, from the launch of Ontario's action plan in August 2007 to September 1, 2008. This report also outlines the challenges we face and the next steps we plan to take.

Challenging, Achievable Greenhouse Gas Reductions

The action plan, on which this report is based, compiles the wide range of provincial climate change programs that put Ontario at the forefront, with some of the most aggressive measures on the continent.

We set targets for reducing the greenhouse gases emitted in Ontario – ambitious, aggressive targets that will kick in as early as 2014. Our targets of a 6 per cent reduction in greenhouse gas emissions (based on 1990 levels) by 2014, a 15 per cent reduction by 2020 and 80 per cent by 2050 are all challenging but achievable, even though emissions today are higher than 1990 levels. The report also describes the policies, programs, partnerships and future initiatives that we will use to combat climate change, and make Ontario a cleaner, greener place to live, work, raise our families and grow.

These targets are goals that we can – indeed must – reach. This will require a concerted effort across Ontario and the support of our federal government. All of us will have to do our part and work together, and all of us should do this now.

We have announced programs for industry, businesses, Ontario families and individuals, both on the job and at home. We have established the structures to

achieve our greenhouse gas reduction goals; we are on target to phase-out coal-fired electricity generation as required by provincial regulation; we have taken bold steps to protect Ontario's Northern Boreal Forest and our southern green space; and we are implementing the largest public transportation initiative in Ontario's history: MoveOntario 2020. The government has streamlined the Environmental Assessment process to ensure that these transportation initiatives get underway in a timely fashion. And we have launched programs and partnerships to work together with other provinces, U.S. jurisdictions and the federal government.

Adaptation is another key part of Ontario's climate change plan, and we are committed to working across all levels of government and sectors to address this multi-faceted issue. In December 2007, I appointed an Expert Panel on Climate Change Adaptation, which will provide the province with advice on adaptation strategies.

Keeping Track

This report will come out every year to ensure accountability to the Legislature and the people of Ontario on progress in achieving the climate change goals we set out in the action plan. Government actions on climate change must be both effective and transparent. All Ontario residents have a right to know what their government is doing, how it is working and what we can do as individuals and families to help solve the problem. Ontario's Environmental Commissioner will provide additional transparency by conducting an independent review of the government's progress.

To coordinate Ontario's government-wide actions on climate change, in February 2008, the government set up the Climate Change Secretariat. Ontario's actions on climate change involve all provincial ministries and agencies. The Secretariat works across government, focusing efforts and ensuring the effectiveness of provincial policies and programs. Our ministry looks forward to continued close collaboration with the Secretariat to work toward our common goals – a collaboration that is well underway with the publication of this annual report.

Working Together

Dealing with climate change effectively is fundamental to protecting and enhancing the high quality of life we enjoy in Ontario. We have so much going for us – there's no place like this. Our province has an abundance of natural resources and a highly-skilled, educated and innovative workforce. Working together to go green, we can build a stronger, low carbon future.

Our current initiatives have laid the foundation, but there are still gaps and we will have to do more to: increase our adoption of energy conservation and renewables; reduce the barriers to action in our homes and on our farms; encourage improved transportation fuels and vehicles; reposition our industry for a low carbon future; enable more action in the broader public service; and develop partnerships for transition and the transfer of technologies from concept to practical use.

To identify a full range of opportunities, we'll be counting on the advice we get from the Premier's Climate Change Advisory Panel and from citizens across the province. We're in this together, and we'll need to keep working together – the Ontario government, businesses, communities, families and individuals – to build a more prosperous society and a better, brighter, greener future.

A handwritten signature in black ink, appearing to read 'John Gerretsen', with a large, stylized flourish extending from the bottom left.

John Gerretsen
Minister of the Environment
Government of Ontario

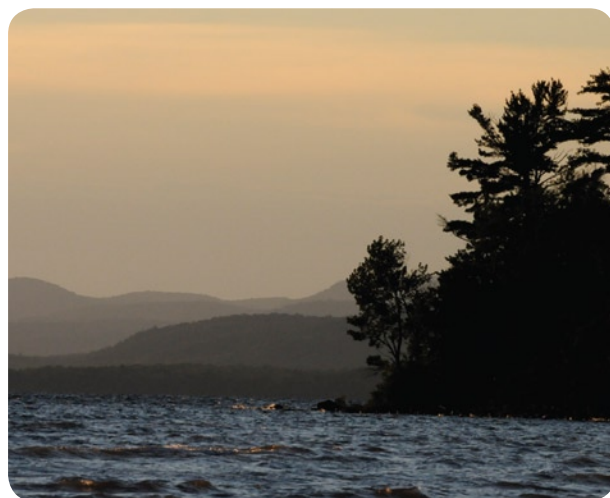
Highlights

1. **Action Plan** – Ontario has laid the groundwork for reducing greenhouse gas (GHG) emissions and adapting to climate change between now and 2050, by launching Ontario's Action Plan on Climate Change in August 2007.
2. **Targets** – Ontario's Climate Change Action Plan establishes aggressive, achievable targets for reducing GHGs by 6 per cent from 1990 levels by 2014, 15 per cent by 2020 and 80 per cent by 2050.
3. **Emission Reductions** – While these targets are achievable, it should be noted that Ontario's emissions in 2006, for which the most recent data is available, are down from 2004, and were also down in 2005, but they are still higher than 1990 levels.

The decline in emissions compared to 2005 is primarily a result of:

- Reduced use of coal-fired electricity with greater use of less carbon-intensive sources of electricity
- Reduced demand for natural gas due to the milder winter of 2006.

4. **Change Management** – In February 2008, the government established Ontario's Climate Change Secretariat to oversee and coordinate government-wide efforts to implement Ontario's Climate Change Action Plan.
5. **Green and Clean Energy** – Through renewable energy supply measures, 2,600 megawatts (MW) of new, renewable power supply has been contracted as of September 1, 2008. Of this, more than 500 MW of new renewables have come into service since October 2003 – bringing total provincial capacity to about 8,400 MW. A three-year, \$9-million program was launched in September 2007 to assist funding 20 to 25 agriculture and agri-food biogas systems that convert agriculture and food-based products and by-products into renewable energy. The program's popularity led to additional funding of \$2 million during the first quarter of 2008.
6. **Green at Home** – New programs and incentives are in place to encourage the use of home solar panels, to retrofit Ontario homes for energy efficiency and to encourage the use of energy efficient appliances. By September 1, 2008, more than 78,000 home energy audits and nearly 20,000 retrofits had been completed. A Retail Sales Tax exemption on eligible EnergyStar® household appliances and light bulbs is in place until August 31, 2009.
7. **Green Ontario North** – In July 2008, the government announced that Ontario will protect at least 225,000 square kilometres of the Far North Boreal region – an area one-and-a-half times the size of the Maritimes. This region is one of the last truly wild spaces on the planet and, by absorbing carbon, a globally significant carbon sink.



8. **Green Southern Ontario** – A program to plant 50 million trees in Southern Ontario by 2020 was launched in August 2007 – nearly 1.3 million have been planted so far. An additional program to plant 100,000 trees in urban areas by 2010 is also on track, with over 24,000 planted. The government has also committed \$56 million over four years for the Pick Ontario Freshness Strategy, which promotes consumer awareness of Ontario-produced foods, while encouraging people to purchase them at grocery stores, farmers' markets and restaurants.
9. **Progress on Transportation Initiatives** – The government is moving forward on a number of measures including program development and funding for MoveOntario 2020, the comprehensive plan for 902 kilometres of rail and light transit for the Greater Toronto and Hamilton Area. We are streamlining the Environmental Assessment (EA) process for public transit projects through a new regulation that limits the EA process to 6 months. Legislation has been introduced to limit the speed of large trucks (minimizing emissions) and work has begun to bring in a low carbon fuel standard, which would reduce these emissions by the equivalent of removing 700,000 cars from Ontario roads. We have also provided a temporary Retail Sales Tax exemption for bicycles costing \$1,000 or less and bicycle helmets.
10. **Green Economy** – The Next Generation of Jobs Fund, launched in March 2008, makes \$1.15 billion available to companies creating green jobs, products and services. The \$625-million, four-year Ontario Research Fund also supports leading-edge research; as of September 1, 2008, \$173 million has flowed through the fund for Research Infrastructure Projects (funding the capital costs of acquiring, developing, modernizing or leasing research infrastructure up to a maximum 40 per cent of the total eligible costs) and \$48 million for Research Excellence Projects (focusing on scientific excellence and strong commercialization plus targeting new, leading-edge research initiatives). New proposals are now being reviewed.
11. **Adaptation** – Ontario's Expert Panel on Climate Change Adaptation, appointed in December 2007, is providing the province with advice on how to apply policies across government that reflect the impacts of climate change that are already underway. In early 2008, Ontario hosted a summit on adaptation, bringing together more than 100 scientific, technical and policy experts from across Canada.
12. **Working with Other Jurisdictions** – The Ontario government has been working closely with others on a collaborative approach to cap and trade for GHGs. In July 2008, Ontario joined the Western Climate Initiative – a group of provinces and states working together to find regional solutions to climate change. In June 2008, Ontario signed a Memorandum of Understanding with Quebec to collaborate on a regional cap-and-trade system for GHGs. In January 2008, Ontario announced it had joined The Climate Registry, to work with other provinces and states to develop and manage a common GHG emissions reporting system. Ontario also participates as an observer in other GHG cap-and-trade initiatives and seeks opportunities for more cooperation with the federal government to curb emissions.

Introduction

This annual report summarizes the government's progress on activities to reduce greenhouse gas (GHG) emissions and adapt to climate change impacts during the past year (from August 31, 2007 to September 1, 2008). The report also describes the collaborative work on climate change that Ontario is undertaking with other jurisdictions, and some of the programs and future measures that are being developed to continue moving Ontario toward a low carbon economy.

This annual report provides an overview of climate change policies and programs across the Ontario government. Some of these programs have already been implemented, while others are being developed in consultation with stakeholders and/or leading experts. This document also lays the foundation for more detailed progress reports on climate change actions that will be published in years to come. Future progress reports will provide more detailed information on GHG emission reductions, and the methodology used to calculate emissions and sectoral trends.



Ontario's Action Plan on Climate Change was released in August 2007. Much more remains to be done, but the province is putting the necessary building blocks in place today for the low carbon economy and society of the future. Some initiatives are still ramping up, especially larger, multi-year initiatives.

This annual report provides an overview. While the report focuses on key initiatives, all the initiatives in the August 2007 action plan are summarized in Appendix G.

→ Quick Fact

What is Climate Change?

The United Nations Framework Convention on Climate Change defines climate change as: "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods". In February 2007, the United Nations Intergovernmental Panel on Climate Change reported that "warming of the climate system is unequivocal" and that "most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."

Quick Fact

Greenhouse Gases

Greenhouse Gases (GHGs) such as carbon dioxide, methane and nitrous oxide come from diverse sources, including:

- Cars, vans and trucks
- Fossil-fuel powered electricity generation plants that provide light, heat and cooling for homes and businesses
- Factories that produce the goods that society consumes
- Landfills that receive garbage from homes and businesses
- Virtually every part of society, including homes, farms and workplaces.

The information in this report is organized as follows:

- **Reducing GHG Emissions**

This part of the report describes how the government is fostering reductions in GHG emissions by developing a conservation culture. It also outlines how the government's policies and programs are supporting our objectives on climate change – in the transportation sector, in innovation and job creation, in creating green energy options, in building greener communities and in reducing the government's own carbon footprint.

- **Adapting to Climate Change**

This part of the report outlines the work Ontario is doing to assess the impacts of climate change, and how Ontario is working to adapt and prepare for those impacts – from research on the effects of climate change to the appointment of an advisory panel of some of the world's leading climate change experts, which will advise the government on how to incorporate climate change adaptation considerations into the areas of health, environment and infrastructure policy, among others.

- **Working with Other Governments and Non-Governmental Organizations**

This part of the report outlines Ontario's collaborative work on climate change with other provinces, U.S. jurisdictions and the federal government. Reducing the emissions that cause climate change is a world-wide effort, and this section describes the actions Ontario is taking to become a Canadian and North American leader.

- **Future Programs and Next Steps**

This part of the report describes where Ontario's Climate Change Action Plan is heading, and what is being developed now to fine-tune and intensify the province-wide efforts to combat climate change, and to build a cleaner, greener future. Progress made on these new initiatives will be reported on in future editions of this annual report.

This first annual report on climate change includes historical data from before the release of the action plan. This data provides a benchmark against which to measure our progress in future years. Please note that the provincial and sector-based GHG emission data used in this report goes up to 2006 (see Appendices A to C), since that is the most recent year for which GHG emission data were available from the federal government.

Ontario's Climate Change Action Plan

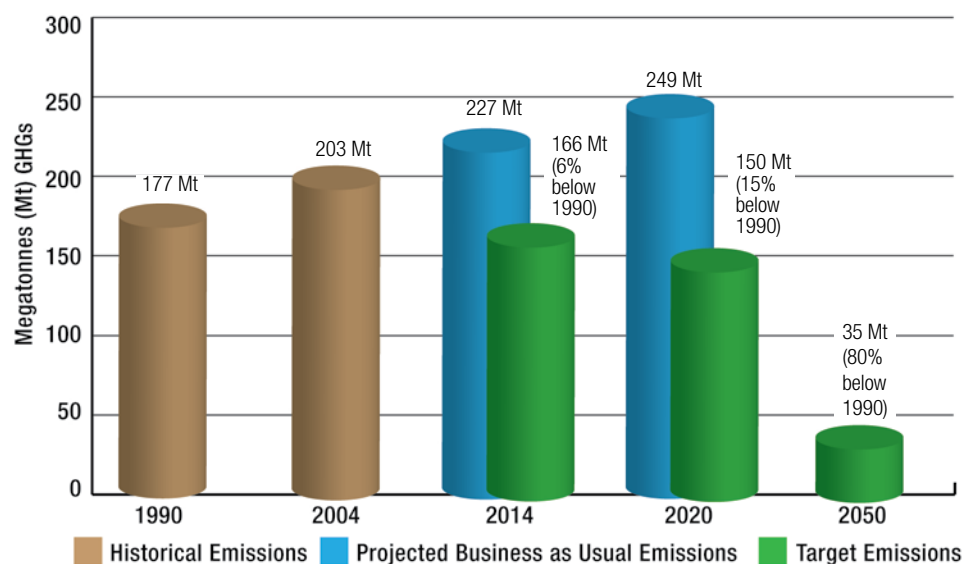
Ontario's Action Plan on Climate Change – released in August 2007 – provides a framework for actions to help Ontario reduce its total emissions and adapt to the unavoidable impacts of climate change. The plan sets province-wide emission reduction targets, outlines policies and programs to promote more widespread use of clean and renewable energy sources, and includes a wide range of measures to reduce the carbon footprint of the Ontario government and the province's industrial, commercial, transportation, municipal and residential sectors.

Ontario's action plan contains GHG emission reduction targets that are ambitious and realistic. They call for:

- Reducing GHG emissions to 6 per cent below 1990 levels by 2014 (most jurisdictions around the world use 1990 levels as the base for calculating emission reductions)
- Further reductions that take the province to 15 per cent below 1990 levels by 2020
- Continuing to achieve reductions to take the province to 80 per cent below 1990 levels by 2050.

These targets put Ontario among the leading jurisdictions in North America in addressing climate change. Figure 1 (below) shows the province's targets in relation to “business as usual” – that is, what they would likely have been without additional action to reduce GHG emissions.

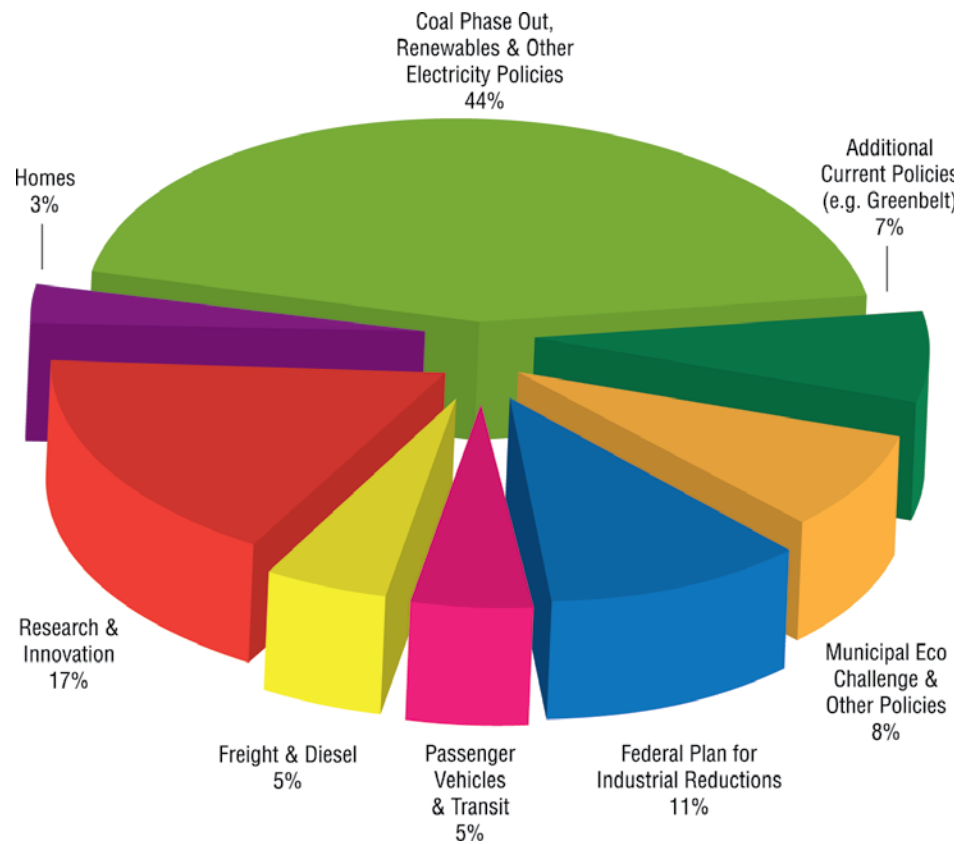
Figure 1: Comparison of GHG Projection Scenarios and Ontario Targets



Source: *Ontario Greenhouse Gas Emissions Targets: A Technical Brief*, June 2007, Government of Ontario

All sectors will have to work together to help the province achieve its targets. The action plan assigns 2014 and 2020 GHG reduction targets to different sectors of the economy.

Figure 2: Where 2014 Reductions Will Come From



Source: *Ontario Greenhouse Gas Emissions Targets: A Technical Brief*, June 2007, Government of Ontario

Ontario's Climate Change Secretariat

The Ontario Climate Change Secretariat was created in February 2008 to achieve the results envisioned in Ontario's Climate Change Action Plan. The secretariat's mandate is to provide comprehensive corporate leadership and support government-wide collaboration.

The secretariat provides strategic support in the areas of policy and program development, business planning and communications as well as supporting the Premier's Advisory Panel on Climate Change and the greening of government.



The secretariat works closely with ministries to identify initiatives that support the GHG emission reduction targets established in the August 2007 Ontario's Action Plan on Climate Change. This collaborative work will enhance alignment among ministries, identify gaps and emerging opportunities, and monitor progress. To this end, Deloitte & Touche LLP included the tools and processes that have been established to collect information across government ministries and agencies in its review of the indicators presented in this report (see Appendix H).

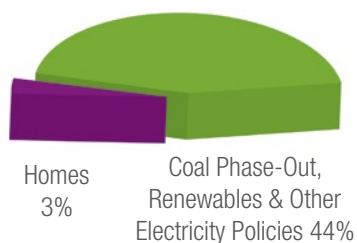
Monitoring Ontario's Progress

The Climate Change Secretariat has worked closely with ministries to design and build a system to track progress towards fulfilling the action plan's targets.

This new system will capture the eight key areas where reductions will come from, as set out in Ontario's Climate Change Action Plan, and tracks 120 initiatives spanning 11 ministries and two agencies (Ontario Power Authority and Metrolinx).

While considerable progress has been made toward reaching Ontario's GHG targets, there is still significant work to be done. The system will be used in the coming years to provide further updates on government-wide progress in achieving commitments in the action plan.

Green and Clean Energy



Action Plan Fact:

Coal Phase-Out and Homes targets account for 47 per cent of the province's 2014 GHG reduction target.



Pictured above is the former coal-fired Lakeview Generating Station in Mississauga as it was about to be demolished in June 2006. By the end of 2014, Ontario will cease to burn coal at the province's four remaining coal-fired generating stations.

Because coal-fired electricity is one of the province's most significant sources of GHG emissions, Ontario will cease to burn coal at the four remaining coal-fired generating stations by the end of 2014. Coal replacement represents a reduction in GHG emissions of up to 30 megatonnes (Mt) – the single largest GHG reduction initiative in Canada. Ontario was the first jurisdiction in North America with a regulation in place to eliminate coal-fired power. (For a full list of recent regulatory and legislative action on climate change, see Appendix D.)

Ontario will reduce its reliance on coal-fired plants, which emit other air pollutants as well as GHGs, by practising energy conservation, expanding the use of renewable energy, enhancing transmission in certain areas and adding new, cleaner, natural gas-fired facilities.

Substantial progress has already been made. In 2003, Ontario's coal-fired generating stations put 35 Mt of carbon dioxide into the atmosphere. By 2007, Ontario's emissions from coal-fired power generation were 20 per cent lower – down to 28 Mt. However, to replace the 6,400 megawatts (MW) of coal-fired generation capacity Ontario has today, conservation efforts must be combined with initiatives to bring more clean and renewable energy sources online to power the provincial grid.

More Green Power

Access to secure sources of reliable electricity will continue to be important as Ontario's economy and population grow. The decision to phase-out coal-fired power to reduce GHG emissions means that our electricity system must grow in cleaner, greener ways.

Ontario has made progress in developing more clean and renewable energy sources over the past several years. The province is on target to meet its goal of signing contracts for at least 2,700 MW of new, renewable power by 2010.

As an example, in 2003, there were only 10 wind turbines in operation in Ontario, with a total capacity of 15 MW. As of September 1, 2008, there were 330 turbines online, with another 345 turbines under construction. By Fall 2009, it is expected that there will be 670 turbines online in Ontario, with a total potential output of more than 1,100 MW.

Ontario's progress in adding renewable energy sources to the provincial power mix can be traced in part to the **Renewable Energy Standard Offer Program** (RESOP) that was developed in partnership by the government and the Ontario Power Authority (a provincial agency).



Under RESOP, small power producers can access 20-year fixed price contracts for projects that use renewable sources, such as solar, wind, biomass or water power. By September 1, 2008, contracts under RESOP and other initiatives had been signed for 2,600 MW of new, renewable power – this includes contracts for more than 500 MW of solar power, one of the largest commitments in North America. When it comes to putting new renewables in service, more than 500 MW of the 2,600 MW contracted has come online since 2003, bringing the provincial total to about 8,400 MW of existing and new renewable capacity in operation.

To further stimulate the use of renewable energy sources, Ontario now provides a full rebate of the Retail Sales Tax paid on eligible solar, wind, micro hydro-electric and geothermal equipment that is installed in residential buildings by December 31, 2009. As well, in 2007, the government announced it would consider proposals for the development of offshore wind power projects on the Great Lakes, where experts believe there is significant wind energy potential.

Ontario is also adding more clean energy sources. As of September 1, 2008, contracts for nearly 4,400 MW of new, natural gas-fired combined-cycle and cogeneration power had been signed. Four hundred and thirty MW of gas power and 19 MW of cogeneration power is online, and most of the other projects are either in the approvals, construction or commissioning stages.

The government is also helping Ontario's institutional, commercial and industrial (ICI) sector to go green. Under a program that started in 2008, the government will invest \$14.4 million over four years in the **Ontario Solar Thermal Heating Incentive** to help businesses in the ICI sector convert to solar thermal heating. One hundred project applications had been received as of September 1, 2008. Of these, 59 projects have been approved and are now being commissioned.



Quick Fact

Local Bans on the Use of Outdoor Clotheslines Lifted

In April 2008, Ontario removed local bans on the use of outdoor clotheslines. Prior to this, some developers had prohibited the use of clotheslines as unsightly, but in the new, green Ontario, energy-saving air drying is a sight to behold. The new regulation was made under Ontario's *Energy Conservation Leadership Act, 2006*, which allows for the removal of barriers to conservation, including municipal bylaws and other covenants. Lifting bans on clotheslines is expected to reduce greenhouse gas emissions related to the use of clothes dryers.

In September 2007, the province established the **Ontario Biogas Systems Financial Assistance Program**. This three-year program provides Ontario farmers and agri-food businesses with \$9 million to help them capture methane and reduce GHG emissions. The funding helps with the installation of biogas systems that convert agriculture and food-based products and by-products into useful, clean and renewable energy. As of September 1, 2008, 46 feasibility studies and 12 construction projects were approved. Because of the program's initial popularity, the government increased its budget by \$2 million in the first quarter of 2008. (Refer to the Making Industry Greener section for more information on how farmers are helping the province meet its climate change objectives.)

Energy Conservation and Green Energy at Home

Homes use energy for running appliances and lighting as well as heating water and space. In surveys, Ontarians have said overwhelmingly that it should be easier for them to practise conservation, and that conservation at home is the best place to start. The Ontario government agrees, and this is why one of the most significant actions to date has been to give people access to programs that help them reduce their residential energy use and move to cleaner, greener energy sources.

Ontario's Home Energy Audit and Retrofit Programs provide up to \$5,000 per household for home energy improvements and related equipment. As of September 1, 2008, more than 78,000 home energy audits and nearly 20,000 retrofits had been completed, thanks to funding assistance from the province of \$112 million over five years.

In June 2008, in partnership with Hydro One and Enersource Mississauga, Ontario launched **PowerHouse Renewable Energy Technologies Funding Program**, a two-year, \$1.3-million pilot program to provide financing for residential renewable technologies such as solar, wind and ground-source heat pumps. As of September 1, 2008, 80 applications had been received.

In addition to conserving energy, homeowners can also use renewable energy in their homes. Ontario provides a **Retail Sales Tax rebate** on eligible solar, wind, micro hydro-electric and geothermal equipment that is installed in residential buildings by December 31, 2009. This is in addition to a Retail Sales Tax exemption on eligible EnergyStar® household appliances and light bulbs until August 31, 2009.

As well, the government has appointed an **Ontario Solar Task Force** to provide recommendations on how to meet the province's goal of installing 100,000 solar roof systems in homes across Ontario. The goal is supported by **Go Solar Ontario**, a "one-stop shop" for public information on solar energy that was established by the government in partnership with the Clean Air Foundation. The program includes a toll-free number (1-866-922-2896), a website (www.gosolarontario.ca), promotions and community workshops with technical information on solar energy, advice on solar incentive offers, a question and answer service, and additional information sources.

Green and Clean Energy Challenges and Next Steps

Ontario's Integrated Power System Plan (IPSP) outlines the projects and programs necessary to maintain a clean, reliable and affordable supply of electricity in Ontario for the next 20 years. The Ontario Power Authority (OPA) is on track to deliver stated conservation and renewable power targets.

The government will continue to monitor and support the coal phase-out. The Renewable Energy Standard Offer Program, launched in 2006, was expected to develop 1,000 MW of green power over 10 years, yet it has already exceeded expectations. To ensure that the program continues to be successful, the OPA is moving forward with a planned program review, while also continuing to accept new proposals.

On September 17, 2008, the Minister of Energy and Infrastructure directed the OPA to revisit its IPSP to advance targets to enhance the emphasis on conservation and renewable power. This includes increasing the amount and diversity of renewable energy sources in the supply mix; improving transmission capacity that is limiting the development of new renewable energy supplies; and accelerating the achievement of stated conservation targets, including a review of the deployment and utilization of smart meters. The Minister also instructed the OPA to undertake an enhanced process of consultation with First Nations and Métis communities, and to consider the principle of Aboriginal partnership opportunities in matters of transmission and generation.

Quick Fact

Solar and Wind Power at Remote Airports

The Ontario government has built a solar and wind power system to supply electrical power for the Summer Beaver Airport. Previously, this airport was supplied by expensive diesel electric generators which generate a high volume of environmental emissions, including greenhouse gases.

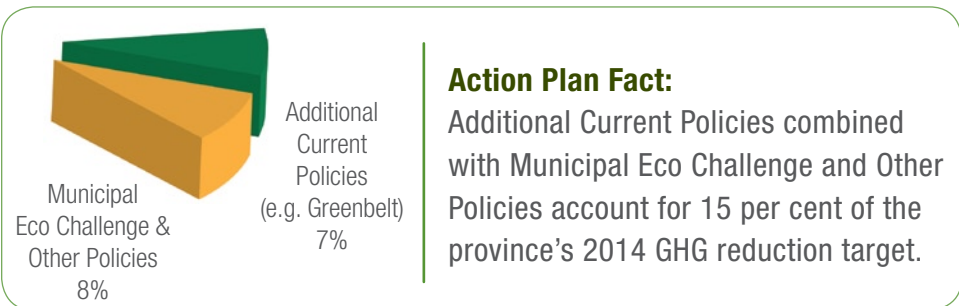
Quick Fact

Conservation Programs

The Ontario Power Authority (OPA), in cooperation with local distribution companies and other delivery partners, has launched a portfolio of electricity conservation programs in four categories: mass market; commercial and institutional; industrial; and demand response. The OPA's Mass Markets portfolio includes a number of public and small business programs aiming to achieve energy and demand savings from residential and small commercial customers. These initiatives include: The Great Refrigerator Roundup Program; Summer Sweepstakes; Aboriginal Program; Cool Savings/Hot Savings Rebate Program; Every Kilowatt Counts Power Savings Event; New Single Family Construction; Local Distribution Company (LDC) Home Energy Efficiency Initiative; Power Savings Blitz; LDC Custom Program and Community Engagement Program.

For more information on these and other conservation initiatives, visit the OPA's Conservation Bureau at: www.conservationbureau.on.ca.

Grow Green – More Sustainable Communities



Municipalities and communities across Ontario have an important contribution to make in reducing GHG emissions, and the provincial government is committed to supporting their efforts in the fight against climate change.

The Ontario government has put great effort into ensuring that the province's population can continue to grow and attracting talented newcomers with ideas and skills – while at the same time ensuring new communities and urban areas are sustainable, that sprawl is discouraged, and that the province's GHG reduction targets can be attained. Key urban and land use planning measures include the *Greenbelt Act, 2005*, the **Greenbelt Plan**, the *Places to Grow Act, 2005*, and the **Growth Plan for the Greater Golden Horseshoe**.

In Southern Ontario, the Greenbelt Plan protects 1.8 million acres of environmentally sensitive and agricultural lands from development – an area larger than Prince Edward Island – while providing for a range of recreation, tourism and cultural opportunities in the area. Local municipalities are now putting the government's Greenbelt policies in place, and the Ministry of Municipal Affairs and Housing released, in August 2008, criteria it will use in the future to consider municipal requests to expand the existing Greenbelt.

► Quick Fact

Planning Reform in Ontario

Ontario's updated Provincial Policy Statement (2005) helps reduce climate change impacts by promoting compact, energy efficient and transit-supportive communities and sustainable resource management.

In the *Planning and Conservation Land Statute Law Amendment Act, 2006*, the Legislature also made changes to the *Planning Act* that support Ontario's great quality of life by helping municipalities promote sustainable technologies, create energy efficient development and support more transit-friendly communities.

The *Places to Grow Act, 2005* marks a significant evolution in Ontario's approach to urban planning and development. In June 2006, the government released the first growth plan prepared under the act – the Growth Plan for the Greater Golden Horseshoe. (Appendix F provides a map of the urban growth centres identified in the plan.) The Growth Plan is a 25-year vision and plan for managing growth in the province's largest urban area, and a key component of the government's strategy to address climate change.

The Growth Plan calls for the creation of more compact, complete and sustainable communities, with the right mix of housing, jobs and community services. It also aims to use infrastructure more efficiently and protect important natural areas and agricultural lands, by directing future growth to existing urban areas. This sustainable approach to development is designed to reduce urban sprawl, conserve valuable farmland and green space, and help reduce GHG emissions.



This year, the province has supported the Growth Plan's implementation by issuing the built boundary, which identifies the built-up areas in the Greater Golden Horseshoe and is an important tool for municipalities and the province to implement and monitor the Growth Plan's mandatory intensification and designated greenfield area density targets.

The province has also issued a report on the size and location of urban growth centres in the Greater Golden Horseshoe, and released a background paper on planning for employment lands. The government has introduced a number of other important measures to help communities throughout the province go green. For example, Ontario filed a regulation in June 2008 to phase-in new requirements for collecting and capturing the methane produced in local landfill sites. The collected methane can be used as a clean source of energy. Most municipalities are responsible for waste management and landfills, so to help municipalities implement the new rules, the province is providing \$10 million over three years for the design and construction of landfill gas systems.

Another key government climate change action involves updating the **Ontario Building Code**, so that every new home and building must be more energy efficient. The first phase of these new energy efficiency requirements became effective in 2007; it includes requirements for more energy efficient windows, higher insulation levels and high efficiency gas- and propane-fired furnaces. Under the new code, a typical new house built in 2007 is about 21 per cent more energy efficient than a house built according to the old code's standards. Further energy efficiency requirements are to be phased-in to the Building Code through to December 31, 2011.

Quick Fact

Population Growth in the Greater Golden Horseshoe

Within the next 25 years, the population in the Greater Golden Horseshoe is expected to increase by more than 3.7 million people – making this part of the province one of the fastest-growing areas in North America. By creating more compact and liveable communities, the Growth Plan will help to ensure the region will grow in a more efficient and sustainable way.

Quick Fact

Sustainable Development Education in Ontario

The government is currently implementing recommendations made by a provincial working group headed by astronaut/scientist Dr. Roberta Bondar, to better integrate education in sustainable development issues into the provincial curriculum. The Ministry of Education is planning a symposium on Education in Sustainable Development to take place in February 2009.

Ontario is also helping municipalities cut energy costs, green their building stock and reduce their environmental impact through the \$20-million **Municipal Eco Challenge Fund**. The program was launched in 2008, along with \$200 million in low-interest loans administered by Infrastructure Ontario. Through the Municipal Eco Challenge Fund, municipalities can apply for grants of up to \$500,000 for showcase projects, and for grants covering up to 25 per cent of retrofit costs, to a maximum of \$100,000 for all kinds of facilities including community centres, arenas and libraries. Eighty-six projects were approved during the first round of the program.

Community involvement in Ontario's action plan is a key element of meeting our GHG reduction targets. The **Community Go Green Fund** – a four-year, \$6.6-million fund – is designed to help people across Ontario switch to a low carbon lifestyle, and thus reduce their contribution to climate change. In 2008, the first round of provincial funding is providing \$2.5 million to support 23 diverse, community-based GHG reduction projects sponsored by not-for-profit groups and small municipalities.

The province is also moving forward on its commitments to plant 50 million trees by 2020 in Southern Ontario, and to plant 100,000 trees in cities and urban areas by 2010. Both programs are currently on track, with 1.28 million trees planted so far under the 50 million trees initiative, and more than 24,000 trees planted under the urban greening initiative.

Through the **Pick Ontario Freshness Strategy**, launched in June, 2007, the government committed \$56 million over four years to promote consumer awareness of Ontario-produced foods, while encouraging people to purchase them at grocery stores, farmers' markets and restaurants. The strategy includes consumer advertising, expansion of the existing **Foodland Ontario** program and the **Savour Ontario** dining program (currently at 74 restaurants) which helps diners identify establishments that serve the best and freshest the province has to offer. These efforts are already achieving real results; government research in 2008 has found that 87 per cent of consumers are now predisposed towards eating Ontario food, an increase of 10 per cent in one year.

Quick Fact

Energy Efficiency and Social Housing

- In the Spring 2008 Budget, Ontario provided a further \$100 million in down payments to the Poverty Reduction Strategy to rehabilitate existing social housing units, including energy efficiency improvements.
- The government intends to expand the Infrastructure Ontario Loan Program eligibility to include key public-sector social housing providers. This expansion would allow the sector to access up to \$500 million in low-cost loans for social housing infrastructure investments, including energy efficiency projects. Program guidelines are currently being developed.
- The High Performance New Construction Program (HPNCP), launched March 2008, is designed to encourage the design and build of more efficient commercial, industrial, agricultural and multi-residential buildings (private and public-assisted housing). Ontario is working with Enbridge to identify projects in the Canada-Ontario Affordable Housing Program that are eligible to participate in the HPNCP.

Protecting Ontario's Far North Boreal Region

On July 14, 2008, the government announced that Ontario will protect at least 225,000 square kilometres of the Far North Boreal region under its **Far North Planning Initiative**. Protecting this region is a key part of the province's plan to fight climate change.

Ontario's Northern Boreal region is one of the last truly wild spaces on the planet. Permanently protecting these lands will help a world wrestling with the effects of climate change, as they are a globally significant carbon sink. The region is home to more than 200 sensitive species of animals – such as caribou and wolverines and, at the highest reaches of the Far North, polar bears – many of which are threatened or endangered. Preserving these spaces will help ensure Ontario's biodiversity.



Photo courtesy of the Ministry of Natural Resources

Scientists, First Nation and Métis communities will collaborate to map and permanently protect an interconnected network of conservation lands across the Far North. The government will work with all northern communities and resource industries to create a broad plan for sustainable development.

Local plans will be developed in agreement with First Nations. And new mineral exploration in the Far North would require early consultation and accommodation with local Aboriginal communities.

The Northern Boreal region has remained virtually undisturbed since the retreat of the glaciers, yet change is inevitably coming to these lands, including the effects of climate change.

Green Communities Challenges and Next Steps

Sustainable growth policies and initiatives, in concert with Ontario's green transportation and energy initiatives, are expected to achieve stated GHG reduction targets.

There are still opportunities to develop additional programming to achieve further reductions and a progressively low carbon lifestyle at home, work and play.

To achieve this, the government will continue to explore changes in urban form, growth and land use change, community transportation and energy planning, and supporting infrastructure. Many of these issues are the subject of broad social debate. Partnerships with municipalities, institutions and the public will be key to success.

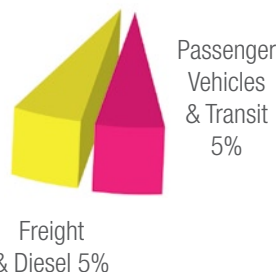
In the Northern Boreal region, this means follow-through on regional planning, under the Far North Planning Initiative, in cooperation with First Nations and northern communities.

Quick Fact

Protecting Ontario's Northern Boreal Forest

- The Northern Boreal region is 43 per cent of Ontario's land mass.
- It is home to 24,000 people living in 36 communities.
- The region absorbs approximately 12.5 Mt of CO₂ from our atmosphere each year.

MoveOntario 2020



Action Plan Fact:

Passenger Vehicles and Transit along with Freight and Diesel targets account for 10 per cent of the province's 2014 GHG reduction target.

Quick Fact

Metrolinx

A major goal of the Metrolinx transportation plan for the Greater Toronto and Hamilton Area (GTHA) is that, when it is fully implemented, 75 per cent of residents in the GTHA will live within two kilometres of a dedicated transit line, compared with 42 per cent today.

This transportation planning builds on MoveOntario 2020, which itself is projected to result in 800 million new transit trips per year, taking 300 million car trips off the road. See Appendix E for additional information.

In 2007, the province announced the **MoveOntario 2020** rapid transit action plan for the Greater Toronto and Hamilton Area (GTHA) – the largest public transit initiative in the province's history. Through MoveOntario 2020, the province will provide \$11.5 billion of a total \$17.5 billion in funding for 902 kilometres of new or improved rapid transit.

By making it easy for people to use fast, efficient public transportation, MoveOntario 2020 will help cut GHG emissions from passenger vehicles, while ensuring that the province's transit infrastructure continues to meet the needs of our growing society.

The government has taken important actions relating to transit, including:

- Mandating Metrolinx – the Greater Toronto Transportation Authority – to develop and implement an integrated multi-modal transportation plan for the GTHA. Metrolinx has released The Big Move, a Draft Regional Transportation Plan for the GTHA (see Appendix E)
- Streamlining the Environmental Assessment (EA) process for public transit projects through a new provincial regulation, introduced in June 2008, to limit the EA process to six months
- Committing \$744 million to Quick Win projects recommended by Metrolinx that will provide short term benefits and lay the foundation for the more expansive projects included in the MoveOntario 2020 initiative
- Providing \$870 million in provincial support to Toronto and York Region, through the MoveOntario Trust, for an 8.6-km extension of the Toronto-York Spadina subway to York University and the City of Vaughan.

Other Transportation Initiatives

Ontario provides a Retail Sales Tax rebate of up to \$2,000 to purchasers of hybrid vehicles. In addition, since December 1, 2007, the province has provided a temporary Retail Sales Tax exemption for bicycles costing \$1,000 or less and bicycle helmets.

The province is also developing a regulation that will limit the maximum speed of large trucks to 105 kilometres per hour. This measure, if passed, will reduce transportation-related GHG emissions as well as help enhance safety on Ontario's highways. The government is also working on a new, \$15-million program to help businesses convert their fleets to more environmentally friendly commercial vehicles. Consultations with technology providers, businesses, environmental groups and other stakeholders were held in April 2008.

The **Low Carbon Fuel Standard** would require a reduction of 10 per cent in carbon emissions from transportation fuels by 2020 – the equivalent of removing 700,000 cars from the roads. Consultations with environmental non-governmental organizations, industry and academia, which began in June 2008, are ongoing. This initiative complements the existing 5 per cent ethanol in gasoline requirement implemented in 2007.

Quick Fact

GO Transit Expansion Underway

The province is investing in a major expansion of GO Transit's rail, bus and parking services, which is being implemented starting in 2008. The expansion includes 35 new bi-level rail coaches, new double-deck buses along Highway 407, and the opening in Burlington, in Summer 2008, of GO Transit's first double-deck parking structure.



Transportation Sector Challenges and Next Steps

Demand for travel will continue to grow as Ontario's population expands and the province continues to attract talented newcomers. Increased mobility brings substantial economic and social advantages. But the link between growth in travel and growth of emissions must be weakened.

More passenger transportation initiatives are required to meet the 2014 GHG reduction target for transportation. The government will continue to assess potential opportunities for further transportation-related action. These include: supporting a shift to alternative transportation forms, like the bicycle; monitoring the advent of new federal fuel economy standards, ongoing work on the low carbon fuel standard and anticipating and responding to external factors such as the development of plug-in, hybrid and electric vehicles and the effect of fuel prices on carbon emissions. The government has moved forward on the more efficient use of transportation resources, having launched a **Transportation Demand Management (TDM) Municipal Grant Program** in June 2008 to provide financial assistance to Ontario municipalities for the development and implementation of TDM-related initiatives.

An effective goods movement system is vital for our economy. However, for freight and diesel the status quo needs to change. The carbon implications of just-in-time delivery and global trade (including long-haul transportation) need to be effectively addressed. New initiatives will need to be examined: using the most efficient transportation forms (i.e., marine, rail and road); improving the performance of freight vehicle fleets; and accelerating the move to low carbon fuels.

→ Quick Fact

Proposed Federal Vehicle Fuel Consumption Standards

On January 17, 2008, the federal government announced it would begin consultations on the regulation of the fuel consumption of new cars and light trucks. Components of the announcement included a commitment to develop "made-in-Canada standards" to achieve, at minimum, the new proposed U.S. federal standard of 35 miles per gallon – or 6.7 litres/100 kilometres – for the average fuel economy of vehicles sold in 2020. The regulations, if passed, would come into force for the 2011 model year.

Making Industry Greener

Federal Plan
for Industrial
Reductions
11%



Action Plan Fact:

Industrial Reductions are expected to achieve 11 per cent of the province's 2014 GHG reduction target.

Ontario is Canada's economic engine – and the province's industries have been working hard to reduce their GHG emissions and their overall environmental impact. Some industries have made excellent progress, while others still have more work to do.

One of the most effective ways to reduce industry's GHG emissions is to place a cap, or limit, on the total amount of emissions allowable, and then require firms to account for their emissions by obtaining emission "allowances" for every tonne of carbon dioxide they emit. Firms can obtain the allowances when the allowances are first allocated, and later by buying and/or trading allowances with other firms. This approach – which gives companies a financial incentive to clean up their operations – is called a cap-and-trade system.



The government believes that an effective cap-and-trade system would not only lead to an overall reduction of GHG emissions over time, but that it would also provide real targets for industries to reach, reward their innovations and protect people's jobs, by giving companies the flexibility to manage their own emissions in ways that work best for them.

A cap-and-trade system will also help make the transition to a low carbon economy by rewarding clean technologies in a way that is both economically and environmentally sound. As a result, Ontario has been advocating the creation of a Canada-wide cap-and-trade system based on absolute emissions caps.

The Ontario government has been working closely with other jurisdictions and organizations on a collaborative approach to emissions caps and trading, and a number of important actions have, so far, been taken.

Quick Fact

Western Climate Initiative

The provinces and states with membership in the Western Climate Initiative account for approximately 73 per cent of the Canadian economy and 20 per cent of the U.S. economy respectively. One of the advantages of a cap-and-trade system is that it provides incentives for continuous innovation in emissions reduction, while creating new green technologies and future jobs.

- In July 2008, Ontario joined the **Western Climate Initiative (WCI)** – a group of provinces and states working together to find regional solutions to climate change. Joining the WCI will give Ontario's industries an opportunity to participate in a broad carbon market that helps them deliver real reductions at a lower cost.
- In June 2008, Ontario signed a **Memorandum of Understanding (MOU) with Quebec** to collaborate on a regional cap-and-trade system for GHGs. The two provinces will work together to make their approach compatible with other cap-and-trade systems that are emerging in North America and around the world.
- In January 2008, Ontario announced it had joined **The Climate Registry** to work with other North American provinces and states to develop and manage a common GHG emissions reporting system that measures, tracks, verifies and publicly reports emissions across borders and industry sectors.
- Ontario also participates as an observer in other GHG cap-and-trade initiatives including the **Regional Greenhouse Gas Initiative (RGGI)** and Midwestern Greenhouse Gas Reduction Accord (MGA). RGGI is a state-level strategic partnership based in the U.S., with a mandate to reduce GHGs from the electricity sector. MGA is a state and provincial initiative to develop a regional strategy to achieve energy security and reduce GHG emissions.

As a member of the WCI, Ontario will work with Quebec, under the Ontario-Quebec MOU, and with its other WCI partners, to finalize the design of WCI's cap-and-trade program in ways that help Ontario achieve its targets.

Cap-and-trade systems also create an economic incentive for facilities or sectors that are not capped to create "carbon offsets" by reducing or removing carbon emissions. If these offsets are approved, they can be used as credits in the carbon trading system.



For example, farmers and other rural landowners can help reduce Ontario's contribution to climate change and participate in a carbon trading system by changing some of their practices – such as reducing the extent to which they till their land. (Tillage opens up the topsoil, which then releases carbon dioxide.) Other helpful measures that can create carbon offsets include improving the on-farm management of manure, planting grasses or trees that can act as "sinks" to absorb carbon, and sustainably managing forests.

As part of the action plan, Ontario is working with its partners in agriculture and forestry to develop, implement and verify a number of carbon offset measures. Over the past year, the government's actions in this area included:

- Adapting 16 carbon offset protocols to Ontario conditions
- Conducting a workshop on the development of offset reductions through tree planting
- Undertaking a pilot project on carbon offsets with Ontario farmers to test the requirements of two draft protocols on selected agricultural practices and gain understanding of the opportunities to contribute to GHG emission reductions. The project is currently in progress.

Along with helping the province meet its industrial sector target, farmers and others in the agri-food sector – where good environmental stewardship and innovation often go hand in hand – are helping with green energy and transportation GHG reduction targets.

A Greener Ontario Government

As part of Ontario's commitment to being a North American leader in the fight against climate change, the government needs to show leadership in its own operations. All provincial ministries and agencies have an important role to play, and over the past year, the Ontario Public Service Green Office has been created to help coordinate actions in all provincial government operations. To date, the government's efforts to green its operations include:

- Adopting the Leadership in Energy and Environmental Design (LEED) standard – an internationally recognized green design standard – for all new government-owned office buildings and major renovation projects, where appropriate
- Targeting savings in electricity consumption in government buildings of 20 per cent of 2003 levels by 2010, having already made savings in energy use of 12 per cent by 2007
- Piloting a green roof project at the Ontario Science Centre to cut costs for heating and cooling while reducing the government's carbon footprint, as well as demonstrating the role of green roofs in: reducing the heat island effect of cities in the summer; helping clean the air; and preventing rain water runoff
- Replacing 99 per cent of incandescent light bulbs with more efficient light bulbs
- Switching the Ministry of the Environment's Head Office in Toronto to Bullfrog Power – a green energy retailer.



Industry Sector Challenges and Next Steps

At the end of 2008, the world's economy faces a period of deep uncertainty – and Ontario's manufacturers and industries will be affected by this. In the short term, this may result in reductions in Ontario's GHG emissions from manufacturing and industry. The goal of Ontario's Climate Change Action Plan is to ensure that over the long term, these emission reductions continue while the economy and Ontario manufacturing and industry thrive and grow.

A cap-and-trade system that provides broad access to trading is a cost-effective way to help industry achieve greater reductions in GHG emissions by providing an incentive to reduce emissions, lower costs and foster innovation. Cap-and-trade systems will also result in a strengthened industrial sector as the province moves towards a low carbon economy by accelerating the development and deployment of low carbon technologies. The transition to a low carbon economy will provide opportunities for technological innovation, and the growth of greener industries and jobs.

The Premier appointed David Ramsay, Member of Provincial Parliament – Timiskaming-Cochrane, to work with the Climate Change Secretariat and the government's new **Green Office** to create an inventory of all government GHG reduction initiatives underway, assess how the impact of government operations on GHG emissions can be reduced, and engage Ontario Public Service staff. The Green Office will work with all ministries to review policies and practices in such areas as passenger vehicle fleet management, travel, building efficiency and procurement to encourage sustainable and environmentally responsible practices that will also help to achieve the targets of the government's action plan.

Creating a Green Economy



Research &
Innovation
17%

Action Plan Fact:

The Research and Innovation sector target accounts for 17 per cent of the province's 2014 GHG reduction target.

In the 21st century, Ontario's economic strength and social prosperity will increasingly depend on our ability to innovate and compete in the global marketplace. Innovation is one of the key components in the government's five-point plan for growing the provincial economy. Ontario's Innovation Agenda involves tackling climate change through strategic investments and support for bio-based, environmental, alternative energy and clean technologies.

Ontario's industrial and manufacturing sectors account for a significant portion of the province's GHG emissions. They also represent a significant part of the solution. Innovation is one of the key building blocks of a green economy, and the Ontario government is providing significant financial support to companies that are creating the green jobs and products of today and tomorrow, while addressing both local and global demand. Something can be done and it is being done.



Photo courtesy of Dan Hahn, Ministry of the Environment

New Jobs by Going Green

The **Next Generation of Jobs Fund** (NGOJF), launched in March 2008, will enable the government to invest \$1.15 billion over the next five years to support research, development and commercialization in innovative industries, and to attract new investments in strategic areas of the provincial economy. This is where support for the new, green jobs will come. The government is now accepting applications. Companies are guaranteed a decision within 45 days of submitting a complete proposal.

The NGOJF is designed to help boost Ontario's overall economy, and one of its key aims is to support the province's action plan on climate change. The fund has multiple streams. The **Jobs and Investment Program** part of the fund targets investments to support business expansion and retention plus attract foreign

investment. This program, launched in March 2008, is designed to support a wide range of companies and key economic sectors, and includes funding for green auto research, parts production and assembly; and manufacturing, processing and environmental technologies. The first successful applicant under the Jobs and Investment Program of the NGOJF is 6N Silicon, a solar power innovator that has been approved for provincial support of close to \$8 million.

The province continues its work on programs that help develop and commercialize clean technologies to ensure our success in the low carbon economy of the future. The tools that help fund these initiatives are a range of investments, including the **Strategic Opportunities Program** of the NGOJF, the **Innovation Demonstration Fund (IDF)** and the **Ontario Research Fund (ORF)**. These investments lay the groundwork for achieving both our short and long term GHG reduction targets. They provide the tools and support to build on existing innovations and technologies, which have already been applied to the targets in each specific sector within the action plan.

The Strategic Opportunities Program of the NGOJF supports industry-led, public-private collaborations focused on increasing Ontario's innovation expertise in bio-economy and clean technologies, advanced health technologies and in creative industries such as digital media, and information and communication technologies. The goal of the program is to create high-skilled jobs and make Ontario a global leader. It is no secret that Ontario's economy, particularly the manufacturing sector, faces severe challenges, as the world moves into a period of economic uncertainty. The NGOJF is designed to anticipate and address challenges and to make it easier for innovative, green Ontario businesses to seek support from the province for their development and growth.

Additional programs include the ORF, a four-year, \$625-million program, which supports leading-edge research that can be developed into innovative goods and services to boost Ontario's economy. As of September 1, 2008, the approximate amount that has flowed through the ORF is:

- \$173 million for ORF – **Research Infrastructure projects** (funding for the capital costs of acquiring, developing, modernizing or leasing research infrastructure up to a maximum 40 per cent of the total eligible costs)
- \$48M for ORF – **Research Excellence projects** (focusing on scientific excellence and strong commercialization and targeting new, leading-edge research initiatives).

Here are some examples of successful ORF projects:

- University of Guelph researchers are investigating renewable alternatives (such as hemp, wheat, corn, soybeans and canola) to develop materials for car parts – and which could result in lighter, more fuel efficient cars and reduced waste.
- University of Toronto researchers are looking at ways to develop new and enhanced power conversion systems for wind energy, with more efficient energy storage units for wind farms, to resolve the technical issues associated with grid integration and result in greater wind harvests.
- University of Western Ontario researchers are establishing a new facility to develop new green products, such as biofuels and biomaterials, as well as advancing innovative technologies and processes.
- Trent University researchers are establishing a leading microenvironment laboratory to investigate the interrelated effects of ozone depletion, air pollution, deforestation, urbanization and declining species diversity. Researchers will collaborate with industry leaders and scientists within Ontario, across Canada and in Europe, the United States and Mexico.

Quick Fact

University of Western Ontario's Biofuels Initiative

Ontario's \$7.5 million support for the University of Western Ontario's Bioproducts Initiative helps tackle climate change by turning the rising global demand for non-petroleum and renewable carbon-based fuels into jobs and investment for rural Ontario. The initiative consists of two projects that take different approaches to turn farm by-products and waste into next generation biofuels.

In the first project, \$5 million of the funding will go towards the creation of a new 19,000-square-foot research centre, the Institute for Chemicals and Fuels from Alternative Resources. The centre will house facilities to test biofuel technologies now being developed by researchers at Western.

Under the second part of the initiative, \$2.5 million will support collaboration between Western, the University of Guelph, the University of Waterloo and Stanton Farms to complete a new biogas facility at the Stanton farm in Ilderton. The facility will house a biodigester system that will turn manure and waste water into energy, while reducing greenhouse gas emissions and odour. The initial energy production capacity is expected to be enough to power almost one-third of the homes in Ilderton (which has approximately 11,000 residents).

The IDF is a \$30-million, four-year funding program announced in June 2006 that focuses on the commercialization and initial demonstration of globally competitive, innovative technologies, processes and/or products. The IDF's goal is to help companies in their efforts to commercialize innovative technologies in Ontario. An example of a successful recipient is Menova Energy Inc., which provides affordable solar energy solutions for the ICI market.

Research and Innovation Challenges and Next Steps

Putting a price on carbon emissions through tools such as a cap-and-trade system puts in place economic drivers that favour more efficient processes, energy conservation and lower emitting fuels. Currently, Ontario is exploring the use of this initiative. However, to address climate change challenges, much more effort will be required over time to generate the research and technology development, plus the demonstration and deployment of breakthrough technologies to achieve the deeper reductions required.

Technology represents the core of the challenge to reduce GHG emissions while supporting an expanding economy. Trying to reduce emissions without a fundamental new set of technologies, could end up hurting economic growth. While energy efficiency can help reduce emissions and costs in the short term, the key to achieving significant long term reductions while fostering economic growth is new low carbon technology.

There is an emerging view that green or clean technology will be the next big growth and investment opportunity. Ontario has significant opportunities in some of the key clean technology sectors including solar power, wind power, biofuels, green buildings, personal transportation and the smart grid. Ontario could capitalize on these opportunities by building on its economic strengths but will need cooperation internationally and among all levels of government and industry to support the large-scale funding of research, development and demonstration projects.

The government will need to work with sectors and key groups to examine the transition and technology strategies necessary to ensure the province's deep reduction targets are met in 2020 and 2050. These strategies will also provide opportunities for Ontario in economic renewal, improved sector competitiveness, and the creation of new green jobs.

Adapting to Climate Change

Ontario's government ministries and agencies are working hard to reduce the GHG emissions that cause climate change. But around the world, including Ontario, the effects of climate change are already upon us. Weather patterns, water levels and growing seasons are changing in many places, even as Ontario and other jurisdictions seek to minimize climate change; it is a long term process and there are likely to be more changes before the job is done.



The Ontario government understands that it has a responsibility to help people adapt to those effects that are already being experienced as well as the future effects of climate change. Over the past year, Ontario has made progress on developing strategies for adapting to the impacts of climate change.

In 2007, Ontario established the **Expert Panel on Climate Change Adaptation**, made up of 11 leading scientists and environmental experts. It is anticipated that by Winter 2008/2009, the panel will provide the government with recommendations on how to incorporate adaptations to climate change into government decision-making and how these adaptations can help address the effects of climate change on communities and ecosystems.

In January 2008, Premier Dalton McGuinty attended a forum on climate change adaptation in Vancouver, sponsored by the Council of the Federation. The Council represents the governments of Canada's 10 provinces and three territories, with Premiers as the representatives.

At the Council's Vancouver meeting, Premier McGuinty, along with Dr. David Pearson, co-chair of Ontario's Expert Panel on Climate Change Adaptation, made a presentation on water resources. Because water resources are critical to ensuring the continued growth and success of Canada's society and economy, the Premier and Dr. Pearson stressed the importance of managing variability in water quantity and assuring its quality.

Following the Vancouver forum, Premier McGuinty hosted a national adaptation summit, **Planning for Today: The Climate Change Adaptation Summit**, on March 31 and April 1, 2008, in Toronto. This event brought together more than 100 scientific, academic, engineering, community and government representatives

Quick Fact

Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem

The 2007 Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem includes a commitment to understand the impacts of climate change on the Great Lakes ecosystem composition, structure, and function, including biodiversity (organisms and their habitat), water quality and quantity, human health and safety (including access to clean drinking water), social well being and economic prosperity.



Photo courtesy of the Ministry of Natural Resources

from across Canada. The meetings focused on developing adaptive solutions to the existing and expected impacts of climate change.

A key outcome of the summit was the need to include adaptation in the mainstream of the government decision-making process. In July 2008, Premier McGuinty presented a report to the Council of the Federation on the climate change summit, and led a discussion that helped the Premiers identify common issues and opportunities for future co-

operation. Based on the summit's recommendations, the Premiers agreed that a community of practice would be established to formalize the knowledge transfer necessary to assist jurisdictions on climate change adaptation. Ontario has offered the expertise of the co-chairs of Ontario's Expert Panel on Climate Change Adaptation in the development of this community of practice.

The government is also funding adaptation research, including \$860,000 over three years to research the effects of climate change on the health of Ontario's polar bear population, which is considered extremely sensitive to changes in climate.

Quick Fact

Intergovernmental Panel on Climate Change

In 2007, this United Nations-backed group of some 2,500 top scientists from 192 countries, pointed out in its fourth report that human activities have contributed significantly to recent changes in ecosystems and weather patterns, and to threats to human health across the world.

Adaptation Challenges and Next Steps

There is a need to refine climate change impacts modelling down to a regional level in order to understand its direct and longer-term effect on our communities. To this end, the government is introducing a \$3.6-million, four-year investment to enhance its modelling, monitoring and research capacity related to the effects of climate change.

Quick Fact

Adaptation Research and Resources

Ontario has developed research tools and resources for finding out more about adapting to climate change. They include:

- **Ministry Research:** A series of research reports that examined the effects of climate change to help the public and policy-makers. For more information, visit the Climate Change Publications and Resources section of the Ministry of Natural Resources' website at www.mnr.gov.on.ca.
- **Online Impacts Mapping Tool:** An educational mapping tool that shows how Ontario's climate might change in response to increasing amounts of GHGs in the atmosphere. The tool is available at www.web2.mnr.gov.on.ca/mnr/ccmapbrowser/climate.html.
- **Ontario Centre for Climate Impacts and Adaptation Resources:** A provincially-funded centre at Sudbury's Laurentian University coordinates research and information on the impacts of climate change and undertakes education, outreach and capacity building on adaptation to communities across the province. For more information, visit www.climateontario.ca.

Working with Other Governments and Non-Governmental Organizations

While Ontario aims to be a leader in the fight against climate change, the province is also eager to work with friends and allies which share common goals and objectives and can help us win the battle.

In August 2007, the **Council of the Federation** agreed to focus its annual meeting on energy and climate change. At this meeting, the Premiers agreed to implement energy conservation strategies and to reduce GHG emissions within their own jurisdictions, according to each province's and each territory's plan for climate change.

The Premiers also agreed to continue their discussions on climate change at the Council's next annual meeting in 2008. The 2008 meeting led the Council to renew its commitment to highlight the importance of green energy technologies and other innovative research through a series of forums with technological and scientific experts. As part of this initiative, Ontario plans to host a session on green vehicle technology. The Premiers also committed to achieve a 20 per cent increase in energy efficiency within their respective jurisdictions by 2020.

Ontario has joined **The Climate Registry**, and is forging links with other provinces and states in the U.S. and Mexico. And Ontario continues to extend its involvement with related emissions-reduction activities, such as the WCI, the RGGI and the MGA.

In June 2008, the Ontario and Quebec provincial cabinets met jointly to strike an **Ontario-Quebec MOU** to develop an emissions trading system for implementation as early as 2010, plus other cooperative measures to help both provinces achieve their targets. More information on Ontario's cap-and-trade approach to emission reductions is provided earlier in this report. For a review of provincial emissions, refer to Appendix C.

In addition to working with other governments, the province is providing support to non-governmental organizations which deliver community-based projects to help Ontarians reduce their GHG emissions (see the Grow Green section of this report for more information).

Quick Fact

Council of the Federation commitments in August 2007 include:

- **Measurement and Verification:** to develop consistent and verifiable measurement of GHG emissions by joining The Climate Registry
- **Renewable Energy:** to collectively produce an additional 25,000 megawatts of renewable energy by 2020 through sources such as hydro, wind, solar and tidal
- **Education:** to include climate change in school curricula.

For more information on other commitments, visit the Council of the Federation's website at www.councilofthefederation.ca.

Future Programs and Next Steps



The Government of Ontario recognizes its responsibility to show leadership on actions to fight climate change.

Through the action plan, Ontario has been laying the foundations to continue reducing GHG emissions and adapting to the effects of climate change. The province's actions to date represent critical steps in meeting our emission reduction targets for 2014, 2020 and 2050 – and in charting the path to a low carbon future.

The Ontario government is committed to making further investments in the research, development and use of cleaner, more sustainable technologies. This commitment will help position Ontario as a leading participant in the low carbon economy that lies ahead. At the same time, government leadership on climate change is helping Ontario's manufacturing, agriculture and forest products sectors build the skilled workforce and the infrastructure they need for a more prosperous and sustainable future.

The Ontario government will continue to move forward to meet our existing commitments – including further cooperative work with Quebec and the WCI on GHG cap-and-trade – and to introduce new initiatives, such as:

- Establishing and protecting an **Inter-provincial Wilderness Area** covering more than 94,000 square kilometres – Ontario will partner with Manitoba to create this important link between the eastern and western boreal forests, and to build on our efforts to protect the Far North Boreal region.
- Implementing Ontario's Far North Planning Initiative – which will protect at least 225,000 square kilometres of the Far North Boreal region, and give priority protection to key ecological features such as endangered species habitat. Under this initiative, Ontario will commit to work with scientists, First Nations and other Aboriginal communities to map and permanently protect an interconnected network of conservation lands across the Far North.
- Adaptation research - introducing a \$3.6-million, four-year investment to enhance the government's modelling, monitoring and research capacity related to the effects of climate change.
- Continuing to green the Ontario government's own practices – to achieve this objective, Ontario recently created the Ontario Public Service Green Office, which will work with all ministries to review policies and practices in such areas as passenger vehicle fleet management, travel, building efficiency and procurement to encourage sustainable and environmentally responsible practices that will help achieve the government's action plan on climate change targets.

In the months and years to come, the government will continue to develop and implement new policies, programs and initiatives – to build a stronger, more prosperous and sustainable future for all Ontarians.

More Ways You Can Begin Taking Action



This report outlines the actions that the Ontario government is taking to address climate change. But there is a lot that average Ontarians can do as well, and the government has developed some resources that can help.

Visitors to the **additup** website – at www.ontario.ca/additup – can learn about the choices everyone can make to move toward a low carbon future. The website also describes the rewards and incentives available to help people take action, and offers tips that can help people save money at work and at home. Visitors to the site can also use the new additup tool to work out their carbon footprint, while learning more about the environment and where to find additional resources.



For more information on climate change and its impact on Ontario – and advice on how you can make a difference – please visit the Climate Change section of the Ministry of the Environment’s website at www.ene.gov.on.ca or call the Ministry of Environment’s Public Information Centre at 416-325-4000 (in the Greater Toronto Area) or 1-800-565-4923 (toll-free).

Conclusion

This is the government's first annual report on our progress in implementing Ontario's Climate Change Action Plan. The actions and initiatives described in this report provide our province with an excellent foundation for addressing climate change. But much work remains to be done to meet the action plan's GHG reduction targets and develop a low carbon economy.

The government is preparing to do more:

- Energy – increase energy conservation programs and renewable energy sources
- Buildings, Homes and Businesses – reduce the informational, financial and social barriers to action at home, on farms and in commerce
- Transportation – encourage low carbon transportation fuels, the adoption of new vehicle technologies, and help create a range of smart transportation choices
- Industry – reposition our industry for a low carbon, competitive economy
- Broader Public Service – encourage more action in public institutions
- Innovation – develop partnerships with all sectors supporting the transfer of technologies from concept to practical use and transition to a low carbon future.



To identify a full range of opportunities, we will be counting on the advice we get from the **Premier's Climate Change Advisory Panel** and from citizens across the province.

Ontario will grow into a stronger and more prosperous society – and a healthier and more sustainable future will unfold for generations to come.

Provincial leadership will continue to be important to coordinate our society's efforts to address this world-wide problem effectively. But everyone in Ontario has an important role to play. The government is confident that working together, Ontario can and will reach these goals.

Appendices

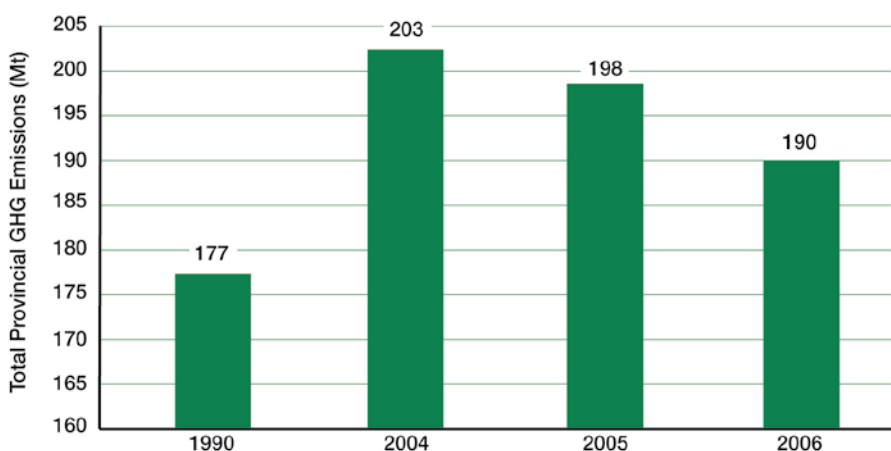
Appendix A: Progress and Gains

Ontario's emissions in 2006 are down by more than 6 per cent from 2004, and were also down in 2005, but they are still 7 per cent higher than 1990 levels (see Figure 3 below).

The decline in emissions compared to 2005 is primarily a result of:

- Reduced use of coal-fired electricity with greater use of less carbon-intensive sources of electricity
- Reduced demand for natural gas due to the milder winter of 2006
- Lower overall emissions from Ontario's chemicals and chemical products sector.

Figure 3: Ontario's Total GHG Emissions Over Time



Source: 1990 and 2004 data from 2006 National Inventory Report (Environment Canada) – the information used in Ontario's Action Plan on Climate Change (August 2007)

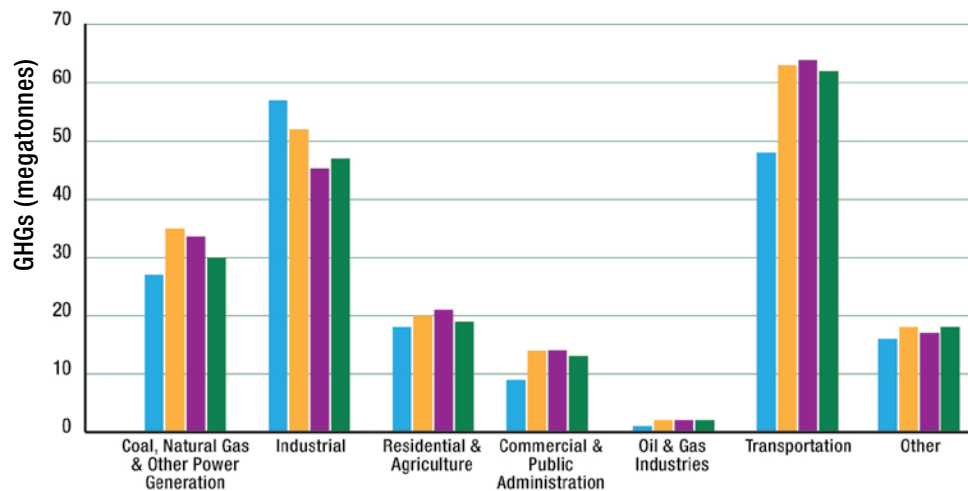
2005 and 2006 data from 2008 National Inventory Report (Environment Canada) – the most recent available

Note on Figure 3: The graph above uses Environment Canada data from its National Inventory Report. Appropriate methodologies for each sector are used by the federal government to estimate emissions and removals. The report is submitted under the United Nations Framework Convention on Climate Change (UNFCCC). Estimated emissions are derived from a combination of Intergovernmental Panel on Climate Change schemes and models, and sectoral operational activities. A UN Expert Review Team checks each report to ensure it meets UNFCCC standards, and also provides advice to improve the reports. Values may change from year to year due to data improvements or revisions.

Appendix B: Greenhouse Gas Emissions by Sector

Figure 4 below shows Ontario's GHG emissions (in megatonnes) by sector.

Figure 4: GHG Emissions by Sector, 1990 and 2004-2006



Source: 1990 and 2004 data from 2006 National Inventory Report (Environment Canada) – the information used in Ontario's Action Plan on Climate Change (August 2007)

2005 and 2006 data from 2008 National Inventory Report (Environment Canada) – the most recent available

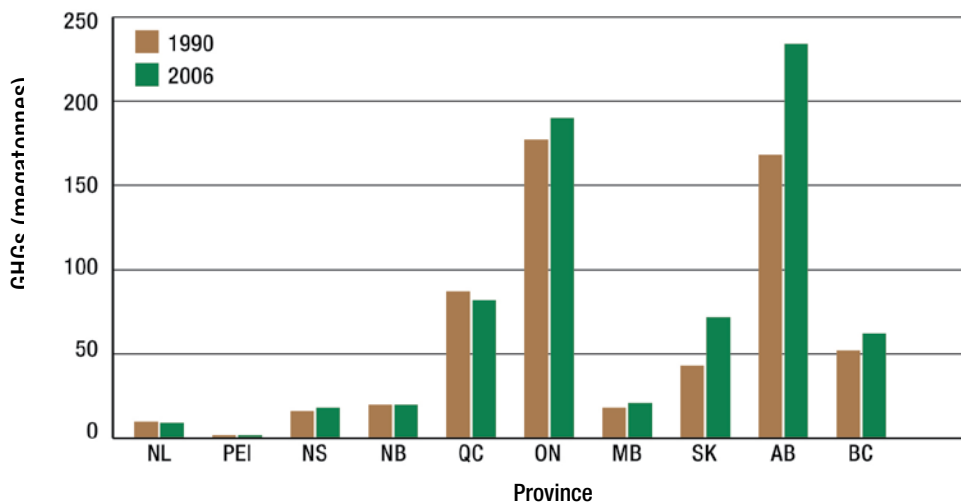
Note 1 on Figure 4: "Residential and Agriculture" includes energy-related emissions only. "Other" includes waste, solvents and non-energy-related agricultural uses (e.g., fertilizer and manure management). "Oil and Gas" does not include energy use related to extraction (which is part of "Industrial").

Note 2 on Figure 4: Figure 4 above uses Environment Canada data from its National Inventory Report. Appropriate methodologies for each sector are used by the federal government to estimate emissions and removals. The report is submitted under the United Nations Framework Convention on Climate Change (UNFCCC). Estimated emissions are derived from a combination of Intergovernmental Panel on Climate Change schemes and models, and sectoral operational activities. A UN Expert Review Team checks each report to ensure it meets UNFCCC standards and provides advice to improve the reports. Values may change from year to year due to data improvements or revisions.

Appendix C: Provincial Greenhouse Gas Emissions Across Canada

Figure 5 below shows provincial GHG emissions (in megatonnes). The left-hand bar represents 1990 emissions and the right-hand bar represents 2006 emissions.

Figure 5: Provincial GHG Emissions Across Canada



Source: 1990 data from 2006 National Inventory Report (Environment Canada)

2006 data from 2008 National Inventory Report (Environment Canada)

Appendix D: Key Regulatory and Legislative Accomplishments

- June 24, 2008: Filed Ontario Regulation 231/08 which provides a maximum duration of six months for Environmental Assessments for public transit projects.
- June 19, 2008: Filed regulatory amendments (O. Reg. 216/08 and O. Reg. 217/08) to phase-in new requirements for collecting and capturing the landfill gas (methane) produced in local landfill sites.
- June 18, 2008: *Highway Traffic Amendment Act (Speed-limiting Systems), 2008* received Royal Assent. The legislation allows limiting the maximum speed of large trucks.
- April 17, 2008: Ontario removed local bans on the use of outdoor clotheslines (O. Reg. 97/08.)
- August 24, 2007: Enacted a regulation (O. Reg. 496/07) requiring that coal not be used to generate electricity at Nanticoke, Atikokan, Lambton and Thunder Bay after December 31, 2014.
- October 19, 2006: *Planning and Conservation Land Statute Law Amendment Act, 2006* received Royal Assent. The act makes changes to the *Planning Act* that support Ontario's quality of life by helping municipalities to promote sustainable technologies, develop energy efficient development and support more transit-friendly communities.
- June 28, 2006: Government of Ontario introduced a new Building Code with the filing of Ontario Regulation 350/06. The 2006 Building Code includes over 700 technical changes, including significant increases in the energy efficiency requirements for buildings.
- March 28, 2006: Ontario's *Energy Conservation Leadership Act, 2006* received Royal Assent. Under the act, ministries, agencies and broader public sector organizations will be required to prepare energy conservation plans on a regular basis, and report on energy consumption, proposed conservation measures and progress.
- October 7, 2005: Filed O. Reg. 535/05, which became effective January 1 2007, requires an annual average of 5 per cent ethanol in gasoline beginning in 2007 and includes an incentive for the use of ethanol made from cellulosic feedstock.
- June 13, 2005: *Places to Grow Act, 2005* received Royal Assent. The legislation makes sure that growth plans reflect the needs, strengths and opportunities of the communities involved, and promotes growth that balances the needs of the economy with the environment.
- February 24, 2005: *Greenbelt Act, 2005* received Royal Assent. The act enables the creation of a Greenbelt Plan to protect about 1.8 million acres of environmentally sensitive and agricultural land in the Golden Horseshoe from urban development and sprawl. It includes and builds on about 800,000 acres of land within the Niagara Escarpment Plan and the Oak Ridges Moraine Conservation Plan.

Appendix E: Greater Toronto and Hamilton Area Transit Plan

Proposed by Metrolinx as part of its Draft Regional Transportation Plan, this map illustrates a massive new regional rapid transit network that would bring three-quarters of Greater Toronto and Hamilton Area residents to within two kilometres of rapid transit.

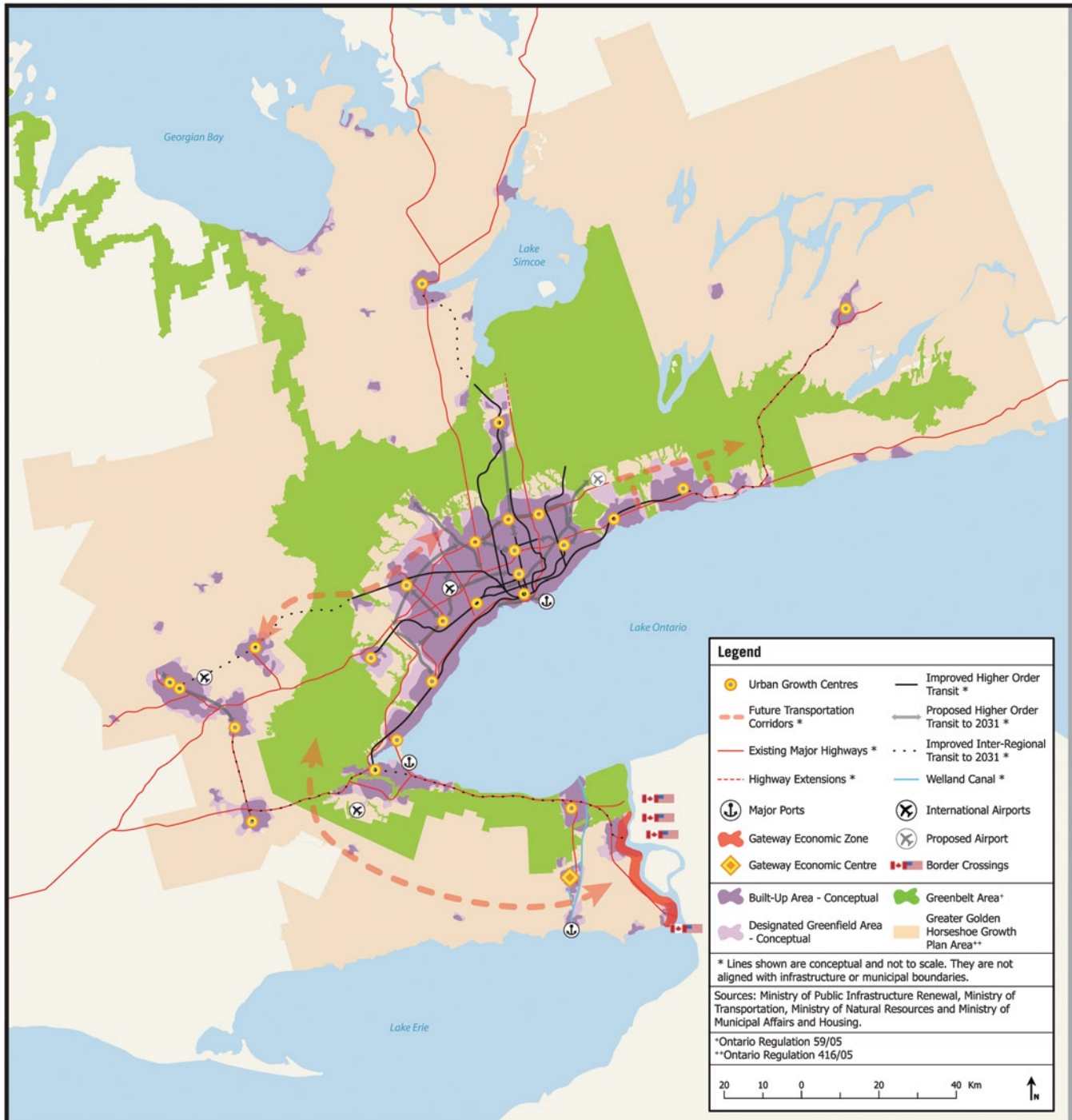
Figure 6: Proposed Greater Toronto and Hamilton Area Transit Plan



Appendix F: Growth Plan for the Greater Golden Horseshoe

Schedule 4 of the Growth Plan for the Greater Golden Horseshoe identifies 25 urban growth centres that will be focal areas for investment in institutional and region-wide public services with major transit infrastructure and employment centres. The Greenbelt, a protected area larger than Prince Edward Island, is also shown in the map, which preserves forests and natural areas that act as a carbon sink to minimize greenhouse gases.

Figure 7: Urban Growth Centres in the Growth Plan for the Greater Golden Horseshoe



Places to Grow Growth Plan for the Greater Golden Horseshoe, 2006

Appendix G: Action Plan Status Information

The table below summarizes the key initiatives discussed in this report, as well as other initiatives the government has put in place to help achieve the province's action plan targets.

Note: Stated GHG projections are subject to revision due to data improvements or revisions.

Green and Clean Energy	
Initiative	Status
Coal Reductions to Date	Between 2003 and 2007, Ontario has reduced carbon dioxide emissions from coal-fired electricity generating stations by 20 per cent, down to 28 megatonnes (Mt) in 2007.
Phase-Out of Coal	Ontario Regulation 496/07 was filed in August 2007, and requires coal-fired electricity generation plants in Ontario to cease using coal no later than the end of 2014. This initiative is expected to reduce GHG emissions by up to 30 Mt a year.

More Green Power	
Initiative	Status
Renewable Energy Supply Measures	Since 2003, Ontario has contracted for about 2,600 megawatts (MW) of new, renewable power (generated from the following sources: wind, solar, renewable biomass, biogas, biofuel, landfill gas, or water) of which over 500 MW is now online.
Clean Energy Supply Measures	As of September 1, 2008, contracts for 3,973 MW of new, combined-cycle natural gas-fired power have been signed, with 430 MW now online, and most others in the approvals, construction or commissioning stages.
Combined Heat and Power (CHP) Supply Measures	<p>Combined Heat and Power (i.e., cogeneration) projects produce both electricity and heat in the same application, allowing users to derive more total energy from the fuel used.</p> <p>Currently, seven CHP projects with a total capacity of 414 MW have been contracted – with 19 MW of new cogeneration now online. A Request for Proposal for an additional 500 MW is underway.</p> <p>Rules and contracts for a Clean Energy Standard Offer Program for small (10 MW or less) CHP projects are currently being developed by the Ontario Power Authority.</p>
Offshore Wind Power projects	After extensive study, Ontario announced in 2007 that it will consider proposals for development of offshore wind energy facilities on the Great Lakes.
Ontario Biogas Systems Financial Assistance Program	<p>Launched in September 2007 as a three-year, \$9-million program to fund 20 to 25 agriculture and agri-food biogas systems that convert agriculture and food-based products and by-products into renewable energy. The program's popularity led to additional funding of \$2 million during the first quarter of 2008.</p> <p>As of September 1, 2008, 46 feasibility studies and 12 construction projects had been approved, and four biogas systems were operating, with total installed capacity of over one megawatt.</p>

Ontario Solar Thermal Heating Incentive	<p>Beginning in 2008, the government is committed to investing \$14.4 million over four years to help businesses in the institutional, commercial and industrial sector convert to solar thermal heating.</p> <p>One hundred project applications have been received as of September 1, 2008.</p> <p>Of these, 59 projects have already been approved and are now being commissioned.</p>
Retail Sales Tax Rebate (for Residential Green Energy)	<p>Ontario currently provides a full Retail Sales Tax rebate on eligible solar, wind, micro hydro-electric and geothermal equipment purchased and installed in residential premises by December 31, 2009.</p>

Energy Conservation and Green Energy at Home

Initiative	Status
Home Energy Audit/Retrofit Programs	<p>Programs were launched in June 2007. As of September 1, 2008, 78,296 audits and 19,959 retrofits had been completed.</p>
Retail Sales Tax Exemption	<p>Ontario is providing a Retail Sales Tax exemption on eligible EnergyStar® household appliances and light bulbs until August 31, 2009.</p>
Phase-Out of Inefficient Light Bulbs	<p>A regulation to ban the sale of inefficient light bulbs by 2012 (where alternatives exist in the market) is currently being developed; if passed, new efficiency standards for light bulbs will be on average about 40 per cent higher than today's standard units.</p>
Ontario Solar Task Force	<p>A taskforce of industry experts and market specialists was appointed to provide recommendations and timelines to the Minister of Energy and Infrastructure on strategies for meeting the provincial target of 100,000 residential solar roof installations.</p> <p>The taskforce submitted a report on October 31, 2008, with recommendations on how the market for solar thermal systems can be encouraged.</p>
Go Solar Ontario	<p>The Ontario government is working in partnership with Clean Air Foundation (CAF) to provide a "one-stop shop" for consumer information on solar energy. A toll-free number and website were launched in September 2007.</p> <p>Province-wide consultations were held by the CAF in Summer 2008. Go Solar Events have been held across Ontario.</p>
PowerHouse Renewable Energy Technologies Funding Program	<p>Launched in June 2008, a two-year, \$1.3-million pilot program is currently underway, in partnership with Hydro One and Enersource Mississauga. Program provides financing for residential renewable technologies, such as solar, wind and ground source heat pumps. As of September 1, 2008, a total of 80 applications had been received.</p>

Grow Green – More Sustainable Communities

Initiative	Status
Greenbelt Act, 2005 and Greenbelt Plan	<p>Legislation protects 1.8 million acres of environmentally sensitive and agricultural land from development.</p> <p>Ministry of Municipal Affairs and Housing (MMAH) provides guidance and support to municipalities as they implement the Greenbelt Plan policy into their Official Plans. <i>Greenbelt Act, 2005</i> mandates a 10-year review of the plan, beginning in 2015.</p> <p>Following public consultations, MMAH released criteria that will be used to consider and evaluate municipal requests to expand the Greenbelt.</p>
Places to Grow Act, 2005 and the Growth Plan for the Greater Golden Horseshoe	<p>Municipalities working on Official Plan conformity to meet the June 16, 2009 deadline. The Ministry of Energy and Infrastructure (MEI) is providing ongoing advice and technical assistance to municipalities as needed.</p> <p>MEI has also released several products to support implementation of the Growth Plan – including a report on the size and location of urban growth centres, a background paper on planning for employment and the built boundary.</p>
Regulation Requiring Collection of Landfill Gas	<p>Regulation finalized in June 2008.</p> <p>Province is providing \$10 million in funding over three years through a program to support municipalities in meeting the new regulation's requirements.</p> <p>Funding applications for 2008-2009 were due by November 7, 2008.</p> <p>Gas system design reports are due by June 30, 2009, when landfill gas monitoring begins.</p> <p>When these new rules are combined with the systems already in place, Ontario landfills will be reducing GHG emissions by more than four Mt per year.</p>
2006 Building Code	<p>The 2006 Building Code sets out new energy efficiency requirements for houses and larger buildings and includes measures to promote green technologies in construction. Some changes went into effect in 2007 (requirements for more energy efficient windows, higher insulation levels and high efficiency gas- and propane-fired furnaces); others are being phased-in through December 31, 2011 to give industry time to prepare.</p> <p>Over the next eight years, the Building Code's increased energy efficiency requirements will reduce GHG emissions by approximately one Mt – the equivalent of taking 250,000 cars off the road.</p> <p>To support the implementation of the new provisions, technical training for designers and building inspectors, a best practices guide for full-height basement insulation, and energy efficiency skills training for builders and trades people were developed.</p> <p>Current priorities include support for updating the model National Energy Code for Buildings and developing improved energy efficiency standards for the 2011 Building Code. A mechanism for regularly updating the Building Code climatic tables to reflect and anticipate climate change is also being developed.</p>

Municipal Eco-Challenge Fund (MECF)	<p>Program launched in May 2008, with first call for proposals on showcase and retrofit projects completed. MECF funds applications from municipalities for grants of up to \$500,000 for showcase projects, and for grants covering up to 25 per cent of retrofit costs, to a maximum of \$100,000.</p> <p>The 86 successful first round applicants for retrofit project/audit and showcase demonstrations have been notified.</p>
\$200 Million in Loans to Municipalities	<p>Loans available to help municipalities reduce GHG emissions by improving and retrofitting buildings.</p> <p>The program was launched in May 2008. An application process for loans is in place and can be found on Infrastructure Ontario's website in the Loans and Services section.</p>
50 Million Trees Initiative	<p>A program with Trees Ontario to plant 50 million trees in Southern Ontario by 2020. This initiative is expected to remove approximately 3.8 Mt of carbon dioxide from the atmosphere by 2054 – equivalent to 172 million car trips from Toronto to Barrie.</p> <p>Program is currently on track, with 1.28 million trees planted.</p>
Urban Greening Initiative	<p>A program with the Evergreen Foundation to plant 100,000 trees in cities and urban areas by 2010. Program is on track, with 24,375 trees planted.</p>
Pick Ontario Freshness Strategy	<p>Government committed \$56 million over four years for the Pick Ontario Freshness Strategy, which promotes consumer awareness of Ontario-produced foods, while encouraging people to purchase them at grocery stores, farmers' markets and restaurants.</p> <p>Program is on track, with elements that include consumer advertising, expansion of existing Foodland Ontario program, Savour Ontario dining program at 74 restaurants, Ontario Market Investment Fund support for industry and local food network marketing and co-ordination and a Farmers' Market strategy aimed at increasing direct sales of Ontario products from farmers to consumers. Research has found an 87 per cent propensity rate to choose Ontario food, which represents a 10 per cent increase in predisposition towards eating Ontario food.</p>
Community Go Green Fund	<p>Program was launched in Fall 2007 to raise local awareness and reduce GHG emissions. In Round One of the program, \$2.5 million was allocated to 23 community projects sponsored by non-governmental organizations and small municipalities.</p>
Community Conservation Initiatives	<p>Program is now in its third year. Goal is to support grassroots-based conservation outreach, education and incubation projects. Typical funding recipients include locally-based, incorporated not-for-profit organizations, such as NGOs, community groups and school groups. Information provided to residents, schools and school boards, children's programs, small municipalities, conservation authorities, multicultural organizations and associations, low income groups, etc.</p> <p>A capacity-building "webinar" for potential applicants was held in June 2008. During the reporting period, 89 projects, with a budget of \$2.6 million, were implemented across the province.</p>

MoveOntario 2020	
Initiative	Status
MoveOntario 2020	<p>Ontario is providing \$11.5-billion of a total \$17.5-billion investment for 902 km of new or improved public transit – the largest investment in transit in provincial history.</p> <p>Major progress on transit includes:</p> <ul style="list-style-type: none"> • Ontario Regulation 231/08, which became law on June 24, 2008, and provides for a maximum duration of six months for Environmental Assessments for public transit projects • Development of a comprehensive transportation plan for Greater Toronto and Hamilton Area (GTHA) by Metrolinx, to promote transit and reduce emissions; final white papers (Vision, Goals and Objectives; and Preliminary Directions and Concepts) were released in May 2008 for discussion; consultations on draft Regional Transportation Plan released in Fall of 2008 • \$744 million in Metrolinx “Quick Wins” Projects approved in the 2008 Spring Budget for the GTHA • Ontario has provided \$870 million to the City of Toronto and York Region, through the MoveOntario Trust, to support the 8.6-km extension of the Toronto-York Spadina Subway; relocation of utilities is expected to begin in Summer 2009.

Other Transportation Initiatives	
Initiative	Status
Speed Limiters on Large Trucks	<p>On March 19, 2008, Ontario introduced legislation that would limit the maximum speed of large trucks. This act received Royal Assent on June 18, 2008. The province is now developing a regulation that will, if passed, limit the maximum speed of large trucks to 105 kilometres per hour. The measure is expected to increase highway safety and reduce GHG emissions.</p>
Low Carbon Fuel Standard	<p>This measure requires a reduction of 10 per cent in carbon emissions from transportation fuels by 2020 – the equivalent of removing 700,000 cars from the roads.</p> <p>Premier Dalton McGuinty and California Governor Arnold Schwarzenegger signed a Memorandum of Understanding (MOU) in May 2007, committing Ontario to coordinate policy development with California.</p> <p>Consultations with environmental non-governmental organizations, industry and academia began in June 2008 and are ongoing.</p>
Green Vehicle Program (Commercial)	<p>Program’s goal is to encourage businesses to choose green commercial vehicle technology.</p> <p>Stakeholder consultations were held in April 2008.</p>

<i>Making Industry Greener</i>	
Initiative	Status
Cooperation with Other Jurisdictions on Cap and Trade	Ontario has signed an MOU with Quebec, and joined both the Western Climate Initiative and The Climate Registry. Ontario has also obtained observer status on the Regional Greenhouse Gas Initiative and the Midwestern Greenhouse Gas Reduction Accord, and continues to collaborate with like-minded jurisdictions on development of an effective cap-and-trade system.
Carbon Offsets	<p>Provincial plans announced in 2007 to develop carbon offset protocols.</p> <p>Established Expert Working Group and planned pilot projects for agriculture and forest sectors.</p> <p>Agricultural pilot project involving reduced till and no-till farming practices and reduced application of nitrogen fertilizer to crop production is taking place.</p>

<i>A Greener Ontario Government</i>	
Initiative	Status
Greening Ontario Government Buildings	<p>Government is targeting reductions in electricity consumption in government buildings of 20 per cent from 2006 levels by 2010. Government achieved 12 per cent reduction in 2007 alone.</p> <p>As of Summer 2008, government has replaced 99 per cent of incandescent light bulbs in provincially-owned buildings with more efficient lighting.</p> <p>Ontario has also adopted the Leadership in Energy and Environmental Design (LEED) standard for construction of all new government-owned buildings and major renovation projects, where appropriate. LEED certification of government-owned building renovations and new construction is ongoing. Twenty-five buildings have received Building Owners and Management Association Go Green Plus environmental certification.</p> <p>A green roof pilot project was installed at the Ontario Science Centre in July 2008. Potential project benefits include cutting heating and cooling costs and reducing the government's carbon footprint. The pilot also demonstrates the role of green roofs in reducing heat island effect of cities in summer, reducing air pollution, and preventing rain water runoff.</p>
MOE Head Office – Bullfrog	The Ministry of the Environment (MOE) has contracted with Bullfrog Power to supply MOE's head office building at 135 St. Clair Avenue West with all of its electricity. Bullfrog Power provides renewable power.
Establishing Two New E85 Fuelling Stations for Government Vehicles	Funding for construction of the stations has been approved. Preliminary site assessments in London and Mimico have been completed. As of September 1, 2008, a tender for the Mimico station has been awarded, and the tender for the London station is underway.

New Jobs by Going Green

Initiative	Status
Next Generation of Jobs Fund (NGOJF) – Jobs and Investment Program	<p>NGOJF program launched in March 2008. Government is making \$1.15 billion in support available and applications are currently being accepted.</p> <p>To date, 6N Silicon, a solar power innovator, has been approved for provincial support of close to \$8 million through the Jobs and Investment Program.</p>
NGOJF – Strategic Opportunities Program	<p>Part of the NGOJF, the Strategic Opportunities Program is a grant program that supports strategic, industry-led collaborative programs and projects in targeted areas of strength for Ontario.</p> <p>Applications are currently being accepted.</p>
Ontario Research Fund (ORF)	<p>One-window for research funding, providing talented researchers with the support they need to undertake cutting-edge research.</p> <p>Almost \$625 million has been committed over four years for ORF's Research Excellence and Research Infrastructure Programs. Funded initiatives include: research for renewable alternatives to develop materials for fuel efficient cars at the University of Guelph (\$6 million); research on new and enhanced power conversion systems for wind energy at the University of Toronto (\$3.5 million); and adaptation research at the University of Western Ontario (\$6.8 million).</p> <p>The deadline for submitting Round Three funding proposals was July 30, 2008. Proposals are currently being reviewed. As of September 1, 2008 the approximate amount flowed through ORF is:</p> <ul style="list-style-type: none"> • \$173 million for ORF – Research Infrastructure projects • \$48 million for ORF – Research Excellence projects.
Innovation Demonstration Fund	<p>Announced in June 2006, the Innovation Demonstration Fund (IDF) is a \$30-million, four-year funding program that focuses on the commercialization and initial demonstration of globally competitive, innovative technologies, processes and/or products.</p> <p>Due to the tremendous success of the IDF program, all of the \$30 million in funding has been allocated. New proposals will continue to be accepted, as the government considers future funding options.</p>
Fuel Cell Innovation Program	<p>This is a \$3-million funding program that focuses on the commercialization of fuel cells and fuel cell-related technologies with an emphasis on moving products to the manufacturing stage.</p> <p>As of September 1, 2008, more than \$1 million in funding has been provided for six projects. The projects include the Hydrogen Village, a community demonstration of hydrogen and fuel cell technology for backup power, fleet and home fuelling.</p>

Adapting to Climate Change	
Initiative	Status
Expert Panel on Climate Change Adaptation	<p>Government announced the full membership of the panel in December 2007.</p> <p>Panel held four meetings as of September 2008. Panel has provided advice on a range of topics to date, including advice on adaptation and source protection planning and capital infrastructure investments in light of climate change.</p> <p>The Panel's report is anticipated in Winter 2008/09 and will include recommendations in relation to health, environment and infrastructure.</p>
Premier's Summit on Climate Change Adaptation	<p>The Summit was held in on March 31 and April 1, 2008, hosted by co-chairs of the Expert Panel on Climate Change Adaptation. More than 100 experts from the scientific, academic, engineering and government communities from across Canada attended.</p> <p>Summit participants provided recommendations for action on adaptation to government in the areas of water infrastructure, emergency management and water resources.</p> <p>At the Council of the Federation's July 2008 meeting, Premier Dalton McGuinty shared the Outcomes Report from the summit with other members of the Council.</p>
Polar Bear Research – Population Health and Sustainability	<p>Province has committed \$860,000 over three years to research the effects of climate change on the health of Ontario's polar bear population, which is considered extremely sensitive to changes in climate.</p> <p>Program is currently on track, with GPS/satellite collars fitted on nine bears, and resources now in place to monitor the health of southern Hudson Bay's polar bear population.</p> <p>Field work now underway to collar an additional 10 bears.</p>

Working with Other Governments and Non-Governmental Organizations	
Initiative	Status
Council of the Federation – Climate Change Initiatives	<p>Ontario is supporting climate change measures sponsored by the Council, which highlight the importance of green energy technologies and other innovative research through a series of forums with technological and scientific experts.</p> <p>Premier Dalton McGuinty reported on Ontario's Climate Change Adaptation Summit and its key outcomes to the Council in July 2008.</p> <p>Ontario to host session on green vehicle technology as part of a series of Council-sponsored events.</p>
Cap and Trade	<p>Ontario is forging links with other provinces in Canada, and with U.S. and Mexican states, on a multilateral approach to cap and trade.</p>
Low Carbon Fuel Standard	<p>Ontario signed a Memorandum of Understanding with California that commits the two jurisdictions to coordinate on Low Carbon Fuel Standard policy development.</p>

Appendix H: External Data Review

TO THE CLIMATE CHANGE SECRETARIAT:

We have reviewed the selected quantitative indicators (listed below) that are presented in Ontario's Climate Change Action Plan, Annual Report 2007 – 2008 (the Report) as of August 31, 2008. The staff of the Climate Change Secretariat is responsible for collection and presentation of the indicators within the Report. Our responsibility is to express a conclusion as to whether anything has come to our attention to suggest that the selected quantitative indicators are not presented fairly.

Scope

The scope of our review comprised quantitative indicators for the following initiatives:

- Coal Phase-out
- Home Energy Audit and Retrofit Programs
- Ontario Solar Thermal Heating Incentive
- PowerHouse Renewable Energy Technologies Funding Program
- Renewable Energy Supply
- Clean Energy Supply
- Combined Heat and Power Supply (Non-renewable)
- Greening the Ontario Public Service – Buildings
- 50 Million Trees Initiative
- Urban Greening Initiative
- Community Go Green Fund
- MOE Head Office – Bullfrog
- Pick Ontario Freshness
- Biogas Systems Financial Assistance Program

Specific quantitative indicators that were reviewed as part of this are listed further below.

We did not review the narrative sections of the Report, except where they incorporate the selected quantitative indicators. We did not review the estimated greenhouse gas reductions set out for each of the initiatives.

Methodology

Our review was conducted in accordance with CICA Section 5025 Standards for Assurance Engagements and, accordingly, consisted primarily of inquiry, analytical procedures and discussion related to information supplied by the Climate Change Secretariat. A review does not constitute an audit and, consequently, we do not express an audit opinion on the selected quantitative indicators.

Our review of the following three indicators was limited to reviewing whether the indicators were consistent with information published in reports issued by the OPA:

- Renewable Energy Supply
- Clean Energy Supply
- Combined Heat and Power Supply (non-renewable)

Our review of the following indicator was limited to reviewing whether the indicator was consistent with information published in reports issued by the OPG:

- Coal Phase-out

Conclusion

Based on our review, nothing has come to our attention that causes us to believe that the above selected indicators are not, in all material respects, presented fairly in accordance with the relevant criteria set out in the Report.

This review is intended solely for the information and use of the Climate Change Secretariat and is not intended to be, and should not be, used by anyone other than these specified parties.

A handwritten signature in black ink, appearing to read "Deloitte + Touche LLP", written in a cursive, stylized script.

Deloitte & Touche LLP
Chartered Accountants
Toronto, Ontario

October 20, 2008

Quantitative Indicators Reviewed

Initiative	Selected Quantitative Indicator
Coal Phase-out	<ul style="list-style-type: none"> Amount of CO₂ emissions from coal-fired plants reduced in megatonnes
Home Energy Audit and Retrofit Programs	<ul style="list-style-type: none"> Number of retrofits performed Number of audits performed
Ontario Solar Thermal Heating Incentive	<ul style="list-style-type: none"> Number of installations
PowerHouse Renewable Energy Technologies Funding Program	<ul style="list-style-type: none"> Number of applications and approvals for projects Funding granted
Renewable Energy Supply	<ul style="list-style-type: none"> Number of facilities commissioned or already in operation Facility generating capacity
Clean Energy Supply	<ul style="list-style-type: none"> Number of facilities commissioned or already in operation Facility generating capacity
Combined Heat and Power Supply (non-renewable)	<ul style="list-style-type: none"> Number of facilities commissioned or already in operation Facility generating capacity
Greening the Ontario Public Service – Buildings	<ul style="list-style-type: none"> Number of energy efficient light bulbs issued Number of buildings with BOMA certification
50 Million Trees Initiative	<ul style="list-style-type: none"> Number and areas of trees contracted to be planted
Urban Greening Initiative	<ul style="list-style-type: none"> Number of trees planted in urban centres
Community Go Green Fund	<ul style="list-style-type: none"> Number of projects approved Funding granted
MOE Head Office - Bullfrog	<ul style="list-style-type: none"> Amount of renewable energy procured during the year
Pick Ontario Freshness	<ul style="list-style-type: none"> Indicators related to third party polls or surveys conducted
Biogas Systems Financial Assistance Program	<ul style="list-style-type: none"> Number of approvals and grants for projects

For more information on climate change,
visit the Ministry of the Environment at:

www.ontario.ca/environment

For more information on what you can do, visit:

www.ontario.ca/additup

Protecting our environment.



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